

LAND AND RESOURCE MANAGEMENT PLAN



MANTI-LASAL NATIONAL FOREST



United States
Department of
Agriculture



Forest
Service

PREFACE

This Land and Resource Management Plan has been developed for the Manti-LaSal National Forest. For information pertaining to the development of this Forest Plan, details can be provided by:

Forest Supervisor
Manti-LaSal National Forest
599 West Price River Drive
Price, Utah 84501

Applicable Laws and Regulations

The principal acts providing direction in developing this Land and Resource Management Plan are:

1. Multiple Use and Sustained Yield Act of 1960
2. National Environmental Policy Act (NEPA) of 1969
3. Forest Rangeland Resources Planning Act (RPA) of 1974
4. National Forest Management Act (NFMA) of 1976

RPA requires the Forest Service to conduct an assessment or inventory of the Nation's renewable resources and develop a program for use of the resources. The assessment includes the determination of the capability of all National Forest System lands to provide various goods and services. It also includes an estimation of future demands for those goods and services.

Public Review and Appeal

If any particular provision of this proposed action, or the application thereof to any person or circumstances, is held invalid, the remainder of the proposed action and the application of such provision to other persons or circumstances shall not be affected thereby.

The right to request an administrative appeal of the Regional decision to approve a forest plan is contained in 36 CFR 211.18 (d), which describes the appeal process. The appeal is limited to the issues raised during the planning process. Intermediate decisions made during the planning process prior to the approval or disapproval decisions are not reviewed.

TABLE OF CONTENTS

	<u>Page</u>
CHAPTER I INTRODUCTION	
Purpose of the Forest Plan	I-1
Relationship of the Forest Plan to Other Documents	I-1
Organization of the Forest Plan Document	I-2
Location of the Forest	I-3
CHAPTER II MANAGEMENT SITUATION	
Introduction	II-1
Physical and Biological Setting	II-1
Physiography	II-1
Geology	II-3
Climate	II-6
Soils	II-7
Landslide and Flood Events	II-7
Vegetation	II-9
Economic and Social Setting	II-15
Population	II-15
Income	II-15
Employment	II-15
Payments to Counties	II-16
Forest Zone of Influence	II-17
Resource Elements	II-20
Recreation	II-22
Cultural, Historical, and Paleontological Resources	II-24
Visual Resource	II-27
Wilderness	II-29
Wildlife and Fish	II-29
Range	II-38
Timber	II-41
Water	II-43
Minerals	II-51
Support Service Elements	II-53
Fire	II-53
Law Enforcement	II-54
Forest Pest Management	II-55
Air Quality	II-56
Lands	II-57
Facilities	II-59
Response to Issues and Concerns to be Addressed	II-65
Suggested Changes in Direction or Emphasis	II-69
CHAPTER III MANAGEMENT DIRECTION	
Implementation	III-1
Forest Management Goals	III-2
Vegetation	III-2
Recreation	III-2
Cultural, Historical, and Paleontological Resources	III-2
Wilderness	III-3
Wildlife and Fish	III-3

TABLE OF CONTENTS

	<u>Page</u>
Range	III-3
Timber	III-3
Soil and Water	III-4
Minerals and Geology	III-4
Lands	III-4
Protection	III-5
Human and Community Development	III-5
Facilities	III-5
Research, Protection, and Interpretation Units	III-6
Resource Supply, Demand, and Proposed Production Summary	III-6
Desired Future Condition of the Forest	III-8
Vegetation	III-8
Developed Recreation	III-9
Dispersed Recreation	III-9
Cultural, Historical, and Paleontological Resources	III-10
Wilderness	III-10
Wildlife and Fish	III-10
Range	III-10
Timber	III-11
Soil and Water	III-11
Minerals	III-12
Research, Protection, and Interpretation Units	III-13
Lands	III-13
Fire	III-13
Law Enforcement	III-13
Facilities	III-14
Management Requirements	III-14
Forest-wide Direction	III-15
Management Unit Requirements	III-44
 CHAPTER IV IMPLEMENTATION OF THE FOREST PLAN	
Implementation Direction	IV-1
Consistency with Other Management Instruments	IV-1
Budget Proposals	IV-1
Environmental Analysis	IV-1
Monitoring and Evaluation Program	IV-2
Revision and Amendment	IV-14
 CHAPTER V INDEX	
 CHAPTER VI APPENDICES	
APPENDIX A ACTIVITY SCHEDULES	
Resource Elements	A-1
Support Service Elements	A-42
 APPENDIX B MINERAL STIPULATIONS AND MITIGATION STATEMENTS	
Coal	B-2
Oil and Gas	B-8
Locatable Minerals	B-21

TABLE OF CONTENTS

	<u>Page</u>
APPENDIX C UNSUITABILITY AND MULTIPLE USE MANAGEMENT EVALUATION	
Introduction	C-1
Unsuitability Assessment	C-1
Multiple-Use Management Decisions	C-7
APPENDIX D ENERGY TRANSPORTATION AND UTILITY CORRIDOR EVALUATION	
Introduction	D-1
Objectives of Corridor Evaluation	D-1
Evaluation Criteria	D-1
General Assumptions	D-2
Management Directions	D-2
Process	D-4
Inventory	D-4
Evaluation	D-7
Recommendations	D-14
APPENDIX E GLOSSARY	
APPENDIX F MAPS	

LIST OF TABLES

<u>Table No.</u>		<u>Page</u>
II-1	Land Status	II-2
II-2	Employment Influence of the Forest in Man Years - 1980	II-16
II-3	Payments to Counties in Dollars - 1980	II-16
II-4	Supply Potential and Expected Demand for Forest Resources	II-21
II-5	Campground Rehabilitation and Expansion Needs	II-23
II-6	Developed Recreation, Existing Use and Estimated Demand	II-24
II-7	Dispersed Recreation, Existing Use and Estimated Demand	II-24
II-8	Forest Scenic Quality (Acres)	II-28
II-9	Forest Visual Quality (Acres)	II-28
II-10	UDWR Population Existing and Desired Goals	II-30
II-11	Number of Vertebrate Species	II-30
II-12	Estimated 1980 Populations of Primary Game Species	II-31
II-13	Index of Habitat Capability for Forest MIS	II-31
II-14	Projected Demand for Wildlife and Fish, Wildlife and Fish User Days (WFUD)	II-35
II-15	Threatened, Endangered, and Sensitive Species Found on the Forest	II-37
II-16	Range Resource Summary, Range Condition, Trend, and Vegetative Types	II-38
II-17	Present and Potential Range Use	II-39
II-18	Number of Livestock Permittees on the Manti-LaSal National Forest	II-40
II-19	Timberland Classification	II-41
II-20	Suitable Timberland Classification by Timber Type	II-42
II-21	Mean Annual Water Yield by Watershed	II-45
II-22	Lakes and Reservoirs Inventory	II-47
II-23	Local Communities Supplied by Water from the Manti-LaSal National Forest	II-48
II-24	Count of Water Use by Categories, Manti-LaSal National Forest (10)	II-49
II-25	Water Uses in Acre-Feet, Manti-LaSal National Forest (10)	II-50
II-26	Fire Statistics (1971-1979), Number of Fires	II-54
II-27	Federal and State Highways Providing Access to the Forest	II-60
II-28	Forest Development Road System, Forest Service Jurisdiction	II-61
II-29	Forest Development Road System, State of County Jurisdiction	II-62
II-30	Forest Highway System, State or County Jurisdiction	II-63
III-1	Outputs and Benefits	III-6
III-2	Costs by Funding Elements	III-7
III-3	Management Unit Symbol and Name	III-45
III-4	Resource Activities by Management Prescription by Planning Period	III-46
IV-1	Monitoring and Evaluation Program	IV-3
A-1	Recreation Construction/Reconstruction Activity Schedule	A-2
A-2	Cultural Resource Activity Schedule	A-4
A-3	Dark Canyon Wilderness Management Activity Schedule	A-5
A-4	Wildlife and Fish Habitat Improvement Activity Schedule	A-7
A-5	Flatwater Fisheries Improvement Activity Schedule	A-11
A-6	Range Improvement Activity Schedule	A-13
A-7	Timberland Classification	A-22
A-8	Comparison with Previous Plan	A-23
A-9	Allowable Sale Quantity and Timber Sale Program Quantity	A-24

LIST OF TABLES

<u>Table No.</u>		<u>Page</u>
A-10	Present and Future Forest Conditions	A-26
A-11	Silvicultural Practice	A-26
A-12A	Timber Sale Activity Schedule (Major Sales)	A-27
A-12B	Timber Sale Activity Schedule (Total Sales, Including Major Sales)	A-28
A-13	Soils Activity Schedule	A-29
A-14	Watershed Condition Survey	A-30
A-15	Watershed Improvement	A-31
A-16	Determination of Instream Flow Needs	A-32
A-17	Flood Damage Repair Activity Schedule	A-34
A-18	Flood Damage Cost Repair Summary (MS)	A-40
A-19	Minerals and Geology Activity Schedule	A-41
A-20	Summary of Forest Options for Initial Action Strength of Force, Fire Management Analysis Level II	A-45
A-21	Landline Location	A-49
A-22	Rights-of-Way	A-50
A-23	Withdrawal Sites Review	A-52
A-24	Proposed Mineral Withdrawal Sites Review	A-54
A-25	Ten-Year Road Maintenance Plan Activity Schedule	A-56
A-26	Forest Development Roads, Recommended Obliteration/Complete Closure	A-57
A-27	Forest Development Roads, Considered/Evaluated for Obliteration/Use Restrictions	A-58
A-28	Forest Development Roads, Considered/Evaluation for Use Restrictions	A-59
A-29	Non-System Roads Recommended for Obliteration	A-60
A-30	Roads Proposed for Forest Development Road System	A-61
A-31	Road Construction	A-62
A-32	Sign Program	A-63
A-33	Building and Structure Program	A-65
C-1	Unsuitability Criteria	C-2
C-2	Application of Unsuitability Criteria	C-6
C-3	Coal Lease Unit Multiple-use Evaluations	C-8
D-1	Existing Electrical and Gas Transmission Lines	D-5
D-2	Existing Federal, State, and Interstate Highways	D-6
D-3	Evaluation Process, Rights-of-Way	D-8
D-4	Evaluation Process, Roads and Highways	D-10

LIST OF FIGURES

<u>Figure No.</u>		<u>Page</u>
I-1	Manti-LaSal National Forest (Map)	I-4
II-1	General Section of Exposed Bedrock Formations on the Manti, San Pitch, and LaSal Divisions	II-4
II-2	Typical Vegetation and Wildlife Distribution Changes with Elevation	II-10
II-3	Average Monthly Precipitation, Orange Olsen Ranger Station	II-44
II-4	Average Monthly Precipitation, Monticello, Utah	II-44
A-1	Timberland Classification	A-22
A-2	Long-Term Sustained-Yield Over 150-Year Horizon, Allowable Sale Quantity by Species Over 50-Year Horizon	A-25
A-3	Fuel Management Zones	A-44
A-4	Fire Management Policy Model	A-48

LIST OF MAPS

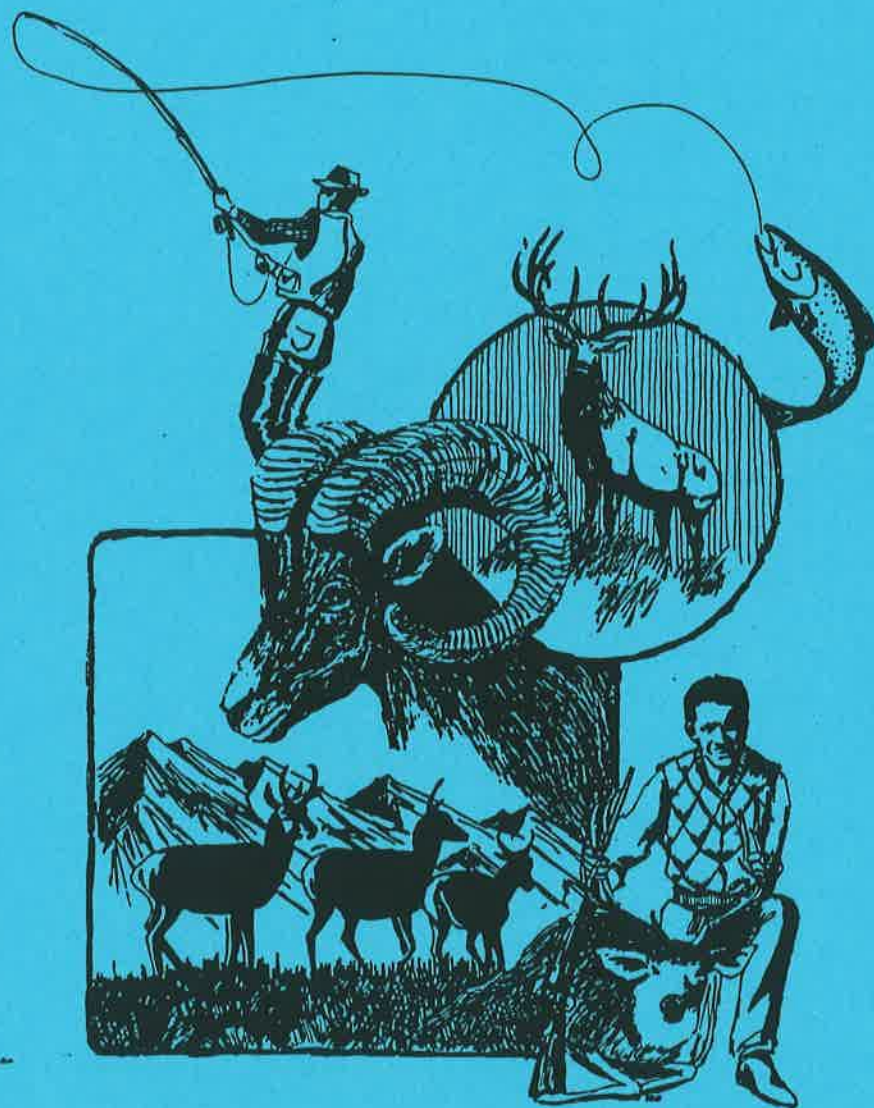
Coal Multiple-Use Evaluation Areas	F-2
Corridor Evaluation; Manti and San Pitch Divisions	F-4
Corridor Evaluation; LaSal Division	F-6
Visual Quality Objective, Final Condition; Manti and San Pitch Divisions	See Map Packet
Visual Quality Objective, Final Condition; LaSal Division	See Map Packet
Recreation Opportunity Spectrum; Manti and San Pitch Divisions	See Map Packet
Recreation Opportunity Spectrum; LaSal Division	See Map Packet
Travel Map; Manti and San Pitch Divisions	See Map Packet
Travel Map; LaSal Division	See Map Packet
Forest Plan Map; Manti and San Pitch Divisions	See Map Packet
Forest Plan Map; LaSal Division	See Map Packet

KEY TO ABBREVIATIONS

Many of the terms used in Forest Planning are often abbreviated in tables and text to conserve space. Those abbreviations are listed below. Terms with an asterisk have a complete definition in the Glossary.

Ac. Ft.*	- Acre-feet	MVP	- Minimum Viable Population
AF	- Alpine fir	NA	- No Action Alternative
AMS	- Analysis of the Management Situation	NEPA	- National Environmental Policy Act
ATV	- All Terrain Vehicle	NFS	- National Forest System
ADM*	- Animal Unit Month	NFMA	- National Forest Management Act
BACT*	- Best Available Control Technology	NPB*	- Net Public Benefit
Bd. Ft.*	- Board Foot	ORV's*	- Off-Road Vehicles
BCI*	- Biological Condition Index	PA	- Preferred Alternative
BCR*	- Benefit Cost Ratio	PAI	- Periodic Annual Increment
BMP*	- Best Management Practice	PAOT*	- Persons at One Time
BTU	- British Thermal Unit	PNV*	- Present Net Value
CFR*	- Code of Federal Regulations	PP	- Ponderosa Pine
Cu. Ft.*	- Cubic Foot	PVB*	- Present Value of Benefits
DAT*	- Diversity Index	PVC*	- Present Value of Costs
DBH*	- Diameter at Breast Height	RARE II*	- Roadless Area Review and Evaluation No. Two
DF	- Douglas fir	RIM*	- Recreation Information Management
DIB	- Diameter Inside Bark	RPA*	- Forest and Rangeland Renewable Resource Planning Act
EIS	- Environmental Impact Statement	RNA*	- Research Natural Area
FIL*	- Fire Intensity Level	ROS*	- Recreation Opportunity Spectrum
FSH	- Forest Service Handbook	ROW	- Rights-of-Way
FSM	- Forest Service Manual	RSM*	- Reduced Service Management
G.A.	- General Administration	RVD's*	- Recreation Visitor Days
GAWS	- General Aquatic Wildlife Systems	SDI	- Stand Density Index
HCI*	- Habitat Condition Index	SP	- Spruce
HRIU*	- Human Resource Unit	S&W	- Soil and Water
ID*	- Interdisciplinary Team	SPM*	- Semiprimitive Motorized
lb(s)	- Pounds	SPNM*	- Semiprimitive Nonmotorized
M	- Thousand	SRU*	- Social Resource Unit
Max	- Maximum	TEP*	- Trade-off Evaluation Process
MBF*	- Thousand Board Feet	TSI*	- Timber Stand Improvement
MC	- Mixed Conifer	UDWR	- Utah Division of Wildlife Resources
MCF	- Thousand Cubic Feet	VQO*	- Visual Quality Objective
MIS*	- Management Indicator Species	WF	- White fir
MKT	- Market	WFUD's	- Wildlife and Fish User Days
MM	- Million	ZOI*	- Zone of Influence
MBF	- Million Board Feet		
MMCF	- Million Cubic Feet		
MRVD	- Thousand Recreation Visitor Days		

CHAPTER I INTRODUCTION



CHAPTER I

INTRODUCTION

Purpose of the Forest Plan

The Manti-LaSal National Forest Land and Resource Management Plan (Forest Plan) guides all natural resource management activities and establishes management Standards and Guidelines for the Manti-LaSal National Forest. It describes resource management practices, levels of resource production and management, and the availability and suitability of lands for resource management.

The Forest Plan embodies the provisions of the National Forest Management Act (NFMA), the Regulations, and other guiding documents. The General Direction and Standards and Guidelines are a statement of the Forest Plan's Management Requirements; however, the project outputs, services, and rates of implementation are dependent on the annual budgeting process.

Relationship of the Forest Plan to Other Documents

Development of the Forest Plan takes place within the framework of Forest Service Regional and National planning. The relationship among the different planning levels is shown as follows:

Congressional Acts

National level

Forest Service planning through the
Renewable Resource Assessment and Program (RPA)

Regional planning level through the
Regional Guide for the Intermountain Region

Forest level planning through the
Manti-LaSal National Forest
Land and Resource Management Plan

The RPA Program sets the National direction and output levels for the National Forest System lands. It is based on suitability and comparability information from each Forest Service Region.

Each Forest Service Region distributes its share of national production targets to each of its Forests. The share each National Forest receives is based on detailed information gathered at the Forest level.

The Forest Plan validates or provides a basis for changing production levels assigned by the Intermountain Region. Activities and projects are planned and implemented by the Forest to carry out the direction developed in the Forest Plan. Information from all the National Forests in the Intermountain Region was used in developing the Intermountain Regional Guide.

The Forest Plan is the selected alternative of the Environmental Impact Statement (EIS) and is based on the various considerations which have been addressed in the EIS. The planning process and the analysis procedure which were used in developing this Forest Plan, as well as the other alternatives that were considered, are described or referenced in the EIS. Activities and projects will be tied to the accompanying EIS as provided for in 40 CFR 1502.20. The local project environmental analysis will use the data and evaluations in the Forest Plan and EIS as its basis.

Analyses of environmental consequences of local projects are done in conformance with the National Environmental Policy Act (NEPA) of 1969 and implementing regulations (40 CFR 1500-1508).

Resource management direction contained in the Forest Service Manual and Handbooks provides Direction, Standards, and Guidelines for the implementation of this Forest Plan.

Organization of the Forest Plan Document

This Forest Plan establishes the long-term direction for managing the Manti-LaSal National Forest. It also serves to inform prospective users, as well as other interested publics, that any occupancy or use of the National Forest System lands must be consistent with the management requirements listed in Chapter III of the Forest Plan.

The Forest Plan consists of this document, Management Unit Maps, and the accompanying Record of Decision. Maps illustrating the location of Management Units is in an envelope inside the back cover of this document. The Forest Plan contains the overall management direction and describes the activities necessary to achieve the desired future condition of the Forest. The Management Unit Maps indicate specific areas of the Forest where activities are scheduled.

This chapter of the Forest Plan (Chapter I) describes the organization of the document and the location of the Forest.

Chapter II describes the present condition of the land and resources, how they are expected to change with the implementation of the Forest Plan, and identifies research needs. Research needs will be analyzed by the Intermountain Region and, when appropriate, will be recommended for inclusion in the next update of the Forest Service Research Program.

Chapter III contains Management Requirements and is divided into three sections. Section one explains how the Forest Plan is to be implemented. Section two specifies the goals and objectives for managing the National Forest System lands and resources. This section also contains Forest-wide Direction which details overall Management Requirements that must be maintained during implementation of the Forest Plan. Section three includes Management Requirements detailing General Direction, Standards, and Guidelines for specific land areas of the Forest called Management Units. The Management Requirements listed in Forest-wide Direction apply to all National Forest System lands unless specifically amended or superseded by Management Unit Requirements. Individual Management Units are identified on the Management Unit Maps located inside the back cover of this Forest Plan.

Chapter IV provides implementation direction, lists and describes the activities and techniques used to monitor the effects of implementing the direction in the Forest Plan, and provides instructions for revisions or amendments. Following Chapter IV is an index and the appendixes. A glossary to aid in interpreting the Forest Plan is included in the appendixes.

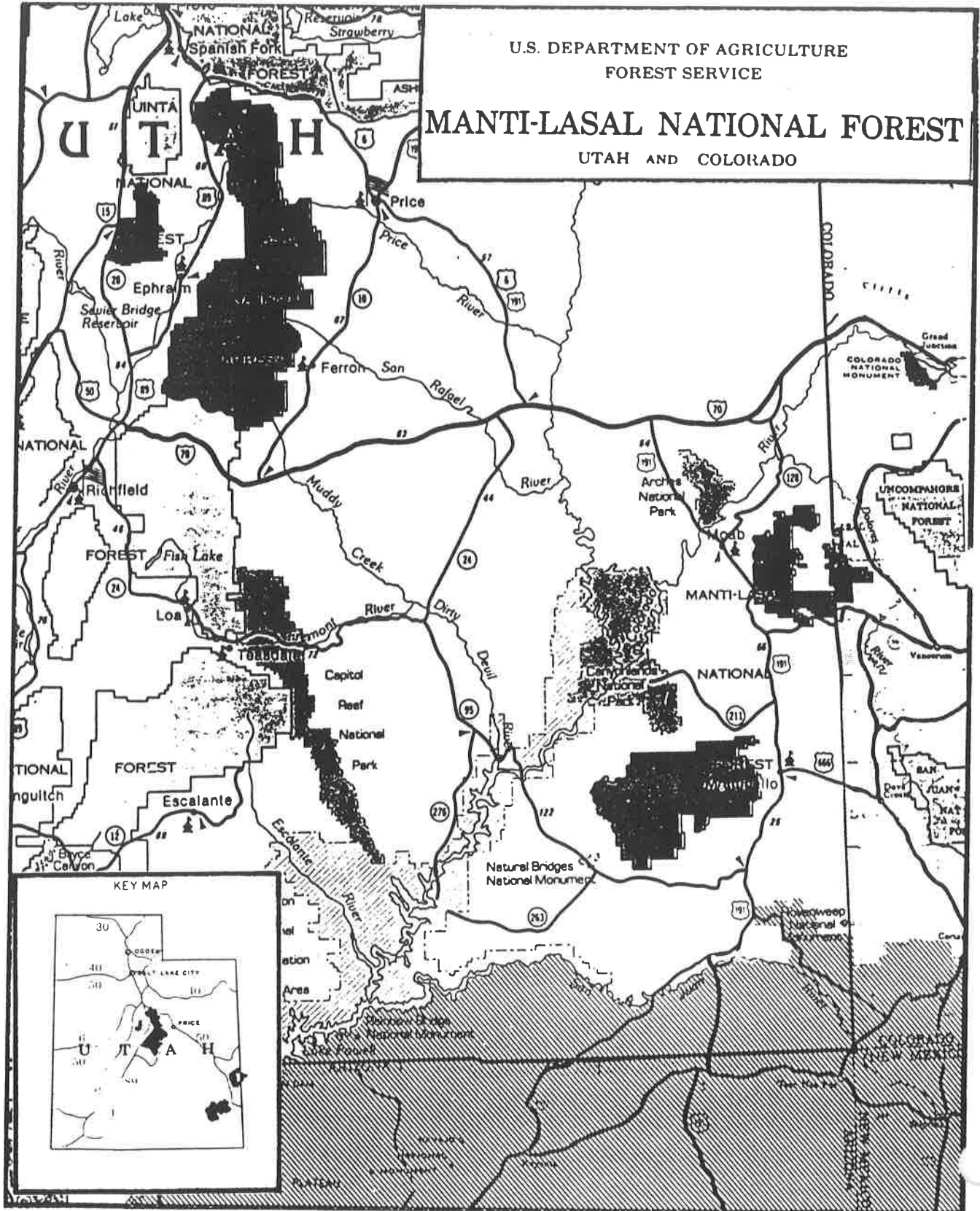
The predicted environmental consequences of the Forest Plan and the various alternatives are disclosed in the accompanying final Environmental Impact Statement. The Forest Plan and the Environmental Impact Statement are companion documents in the decision process. The Environmental Impact Statement describes the alternatives considered in arriving at the Forest Plan and discloses the environmental consequences of implementing the Forest Plan and the alternatives considered. Once the decision is made to adopt this Forest Plan, it can stand alone.

The Environmental Impact Statement prepared for the Forest Plan and/or the Forest Plan itself will be used in tiering (40 CFR 1502.20 and 1508.28) for future Environmental Assessments and Environmental Impact Statements. Tiering means that environmental documents prepared for projects implementing the Forest Plan can incorporate the decision of the Environmental Impact Statement and the Forest Plan by reference rather than repeating information. Environmental documents prepared for individual projects associated with implementing this Forest Plan can, therefore, be site-specific only.

Location of the Forest

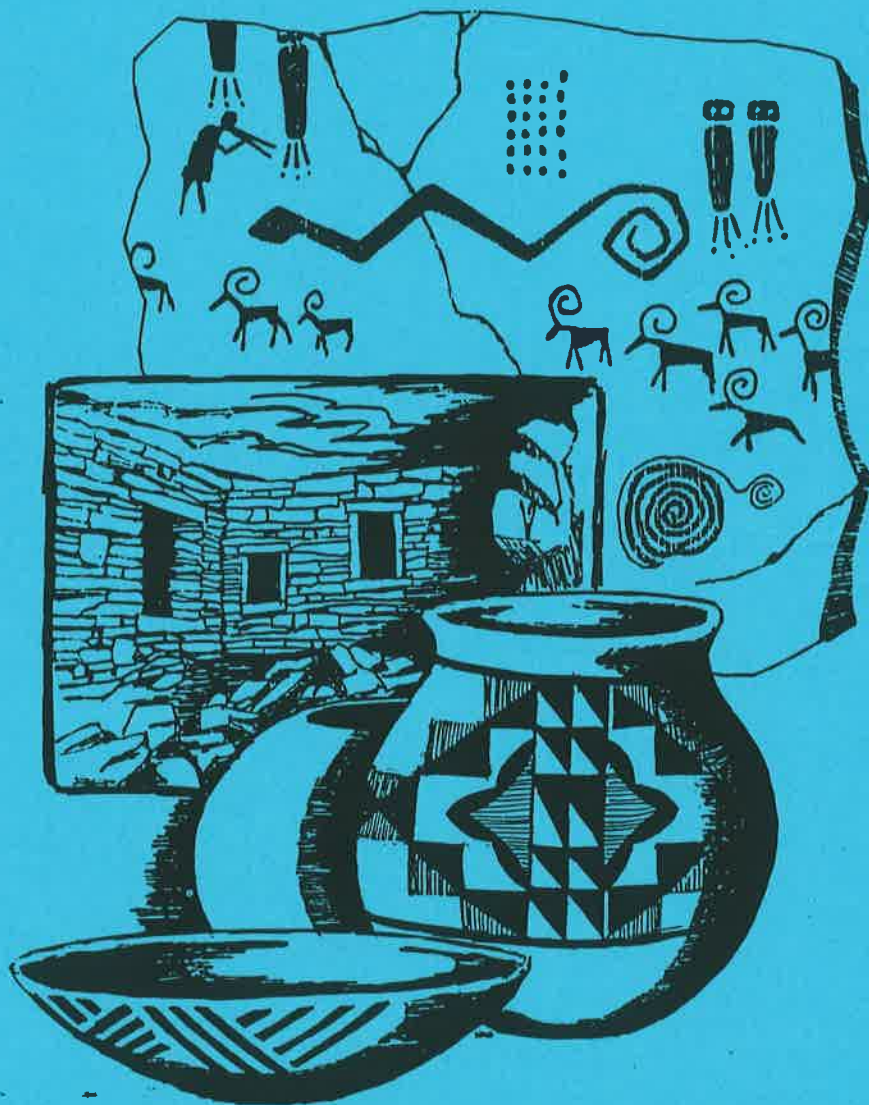
The area covered by this Forest Plan is the Manti-LaSal and a portion of the Uinta National Forests, known as the Manti-LaSal National Forest. The Forest is an administrative unit of the Intermountain Region of the Forest Service, United States Department of Agriculture. Its 1,414,153 acres of National Forest System land are in Central and Southeastern Utah and Western Colorado. (See Figure I-1 and Chapter II, Table II-1.)

FIGURE I-1



CHAPTER II

MANAGEMENT SITUATION



CHAPTER II

MANAGEMENT SITUATION

Introduction

Chapter II the Management Situation is a condensation of the Analysis of the Management Situation, prepared originally in 1980 and updated through 1985 as additional information was validated. It provides a reference to the conditions that existed when the Forest Plan was prepared. It is included to provide future plan users an understanding of the emphasis given in the Forest Plan.

The Forest is made up of three divisions (see Figure I-1). It is managed by five Ranger Districts. The San Pitch Division and the west slope of the Manti Division forms the Sanpete Ranger District. The east side of the Manti Division is divided on the Huntington Canyon - Cottonwood Creek water divide, with the southern portion forming the Ferron Ranger District and the northern portion forming the Price Ranger District. The LaSal Mountain portion of the LaSal Division forms the Moab Ranger District. The Abajo (Blue Mountain) and Elk Ridge portion of the LaSal Division is the Monticello Ranger District.

Table II-1 shows landownership within the Forest's boundaries and the acreage by political subdivision.

Lands adjacent to the Forest in Sanpete Valley, the west slope of the San Pitch Division, the northern portion of Castle Valley, and east of the Abajo Mountains, are generally in private or State ownership. The Moab District surrounds a township that is in about half private and half State ownership. The balance of the lands adjoining the Forest are generally in public ownership.

Physical and Biological Setting

Physiography

The Forest is within the Dry Physiological Domain where, in general, the potential for annual losses of water through evaporation at the earth's surface exceed the annual water gains from precipitation. Major portions of the Forest are anomalies where precipitation generally exceeds the potential for evaporation.

The Manti and San Pitch Divisions are in the central portion of the Rocky Mountain Forest Province and are further divided into six land type associations including Lakes, High Plateaus, Ridges and Valleys, Eastern Clifflands, Monoclines, and Rolling Basins. These surface features are the result of faulting, glaciation, and erosion. The LaSal Division is in the Colorado Plateau Province and is further subdivided into four land type associations, including High Mountains, Deep Canyons, Mountain Outcrops, and Mesas and Shallow Canyons. These surface features are a result of faulting, igneous intrusion, glaciation, and erosion.

TABLE II-1

LAND STATUS
Manti-LaSal National Forest

	Net NFS	Non-Fed.	Gross Acres
INSIDE BOUNDARY			
<u>Sanpete Ranger District</u>			
Sanpete County	166,086	6,716	172,802
Utah County	11,834	110	11,944
Sevier County	51	0	51
Manti Division	177,971	6,826	184,797
Juab County	51,035	5,250	56,285
Sanpete County	18,003	1,872	19,875
San Pitch Division	69,038	7,122	76,160
DISTRICT TOTAL	247,011	13,948	260,957
<u>Ferron Ranger District</u>			
Emery County	147,878	11,811	159,689
Sanpete County	151,079	2,464	153,543
Sevier County	29,672	478	30,150
DISTRICT TOTAL	328,629	14,753	343,382
<u>Price Ranger District</u>			
Carbon County	30,202	8,507	38,709
Emery County	68,513	19,698	88,211
Sanpete County	45,468	12,469	57,937
Utah County	79,456	1,680	81,136
DISTRICT TOTAL	223,639	42,354	265,993
<u>Moab Ranger District</u>			
Grand County	57,530	2,691	60,221
San Juan County	83,908	3,384	87,292
Mesa County	4,542	40	4,582
Montrose County	22,563	0	22,563
DISTRICT TOTAL	168,543	6,115	174,658
<u>Monticello Ranger District</u>			
San Juan County	366,641	2,490	369,131
DISTRICT TOTAL	366,641	2,490	369,131
<u>Division Summary</u>			
San Pitch Division	69,038	7,122	76,160
Manti Division	730,239	63,933	794,172
LaSal Division	535,184	8,605	543,789
FOREST TOTAL (Inside Boundary)	1,334,461	79,660	1,414,121
OUTSIDE BOUNDARY			
Ferron R.D., Emery County	6	0	6
Moab R.D., Grand County	1	0	1
Sanpete R.D., Sanpete County	21	0	21
Juab County	2	0	2
GRAND TOTAL	1,334,491	79,660	1,414,153

Geology

MANTI DIVISION

The boundary of the Manti Division roughly corresponds with the structural limits of the Wasatch Plateau. This plateau is the northernmost portion of the High Plateaus of Utah. The eastern margin of the plateau is formed by an abrupt wall of barren cliffs and steep slopes, broken only by the V-shaped mouths of large canyons. It forms the great highland rim of the Colorado Plateau Region. This great escarpment is formed entirely by erosion, except for a small part near the town of Emery where some faulting is evident.

On the west, the margin of the plateau is hardly less abrupt than on the east, although the character is entirely different. The rock layers of the western margin bend downward toward the Sanpete and Sevier Valleys forming a monoclinial fold. The slope of the plateau front corresponds with the dip of the rock layers.

Major faulting falls into three separate zones or groups which have been described by Spieker as the North Gordon, Pleasant Valley, and Joe's Valley Fault zones. The rock layers between the major faults of each zone have dropped relative to the surrounding areas forming "grabens". The remainder of the plateau has experienced more minor faulting. The faults are considered normal in that beds on one side of the fault have down-dropped in relation to the other side. The fault planes that have been observed are vertical or nearly vertical.

The plateau surface ranges from 9,000 to 11,300 feet above sea level and 3,000 to 6,500 feet above the valley floors to the east and west. The higher levels present a striking contrast to the barren cliffs and rugged canyons of the east front.

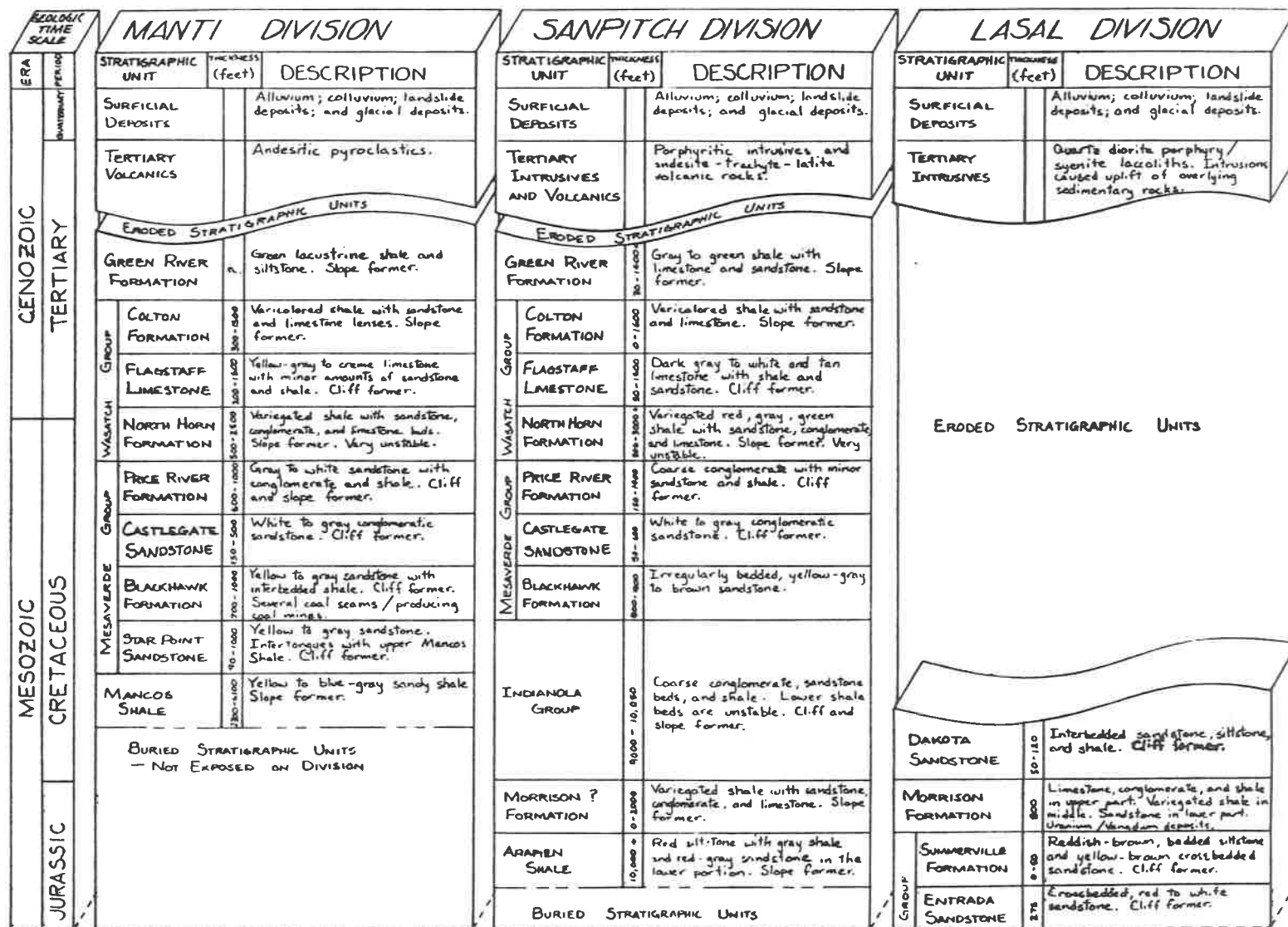
Rock formations of the Wasatch Plateau are dominantly sedimentary in origin and range in age from upper Cretaceous to lower Eocene. They consist mostly of sandstone and shale, but also include beds of conglomerate, limestone, and siltstone. Their combined thickness in the plateau exceeds 10,000 feet. Generally, the rock strata are tilted at slight angles with a few locations lying nearly flat. However, some locations have been subjected to more disturbance and strata dip between 10 and 20 degrees. The stratigraphic units include the Mancos Shale through the Green River Formation. Figure II-1 presents the stratigraphic sequence of the formations, shows a brief description of their lithologies, and displays their relative ages. This figure also shows the relationship of the coal seams of the Wasatch Plateau Coal Field to the stratigraphy. The North Horn and Green River Formations generally tend to be naturally unstable due to their composition and structure. The coal bearing Blackhawk Formation also tends to be unstable, but to a lesser degree. Nearly all of the formations and soils of the plateau are susceptible to failures given the right conditions, such as steep slopes, water saturation and faulting.

SAN PITCH DIVISION

The San Pitch Division includes the northern portion of the Gunnison Plateau also known as the San Pitch Mountains. The Gunnison Plateau is part of the eastern margin of the Great Basin. Along the eastern bank of the Gunnison Plateau, rock layers are complexly folded. Faulting in the area is common and most faults tend to be normal faults. The Sevier-Sanpete Fault Zone (graben) trends north and south along the east bank of the Gunnison Plateau. Elevations range from approximately 5,600 feet in Sanpete Valley to 9,000 feet at the top of the plateau.

FIGURE II-1

GENERAL SECTION OF EXPOSED ROCK FORMATIONS
ON THE MANTI, SAN PITCH, AND LASAL DIVISIONS





Sedimentary strata exposed in the area ranges from Jurassic to Tertiary in age. A brief description of each rock unit is presented in Figure II-1. The Green River and North Horn Formations tend to be naturally unstable. This is also true of the Blackhawk Formation, but to a lesser degree. Nearly all of the other exposed formations have potential for some degree of instability.

LASAL DIVISION

The Moab and Monticello Ranger Districts have very similar structures and stratigraphs though distinctly different from the Manti and San Pitch Divisions. Both Districts contain four distinct geographical features; high mountain areas, pediment slopes, mesa table lands and canyons. Elevations range from approximately 6,000 feet to nearly 13,000 feet.

Sedimentary strata exposed on the LaSal Division ranges from Pennsylvanian to Quarternary in age, having a thickness of about 5,000 feet. These rock layers overlies approximately 4,000 feet of unexposed sedimentary strata, Paleozoic in age, which rest upon Precambrian crystalline rocks (Figure II-1).

The local structural geology of both Districts is influenced by the intrusive LaSal (Moab) and Abajo (Monticello) Mountains. Regional structure of the Moab Ranger District area is controlled by the Uncompahgre Uplift (a high uplift located 25 miles north of the LaSal Mountains). Regional structure of the Monticello Ranger District area is mainly controlled by the Monument Upwarp, a broad low arch, and to a lesser degree by the Comb Monocline. The north ends of both structures are within the Elk Ridge area of the Monticello District.

The geology of the LaSal Division is also influenced by deformation caused by flowing of salt and gypsum deposits. High angle, normal faults are common on the LaSal Division. Faulting is associated with the igneous intrusives which formed the mountains, salt flowage, and regional structure. Major faulting has formed well-defined grabens.

The sedimentary rock formations exposed on the LaSal Division are generally stable. The igneous rocks which formed the mountains have been exposed by erosion. Rock glaciers on steep slopes are commonly unstable.

Climate

Precipitation, 10 inches at lower elevations to nearly 35 inches at higher elevations, comes from Gulf Stream air masses during the summer and from Pacific air masses during the winter.

The average annual temperatures are 35 to 55 degrees Fahrenheit. The average annual frost-free period (the growing period) ranges from 120 to 20 days, decreasing with elevation. Some years, there is no definable frost free period at high elevations.

The prevailing wind pattern is from the southwest. Surface winds and velocities are influenced by topography, storm frontal activity, and diurnal temperature fluctuations, and may come from any direction.

Soils

Soils on the Manti-LaSal National Forest vary considerably in relationship to the geologic, climatic, and topographic characteristics for the area. Most of the soils have formed from sedimentary rocks including sandstone, shale, and limestone. On the LaSal Division, quartz diorite porphyry is also a major rock type from which the soils have formed.

Most of the soils are well drained. The texture may range from loamy sand to clay. However, sandy loam to clay loam is the most common textural range. Soil depths are typically shallow to moderately deep (12 to 40 inches) with the exception of those soils developed on transported materials such as alluvium, colluvium, and glacial deposits. Stony or cobbly soils are common on most of the steep mountain slopes.

Most of the soils, except for those on some pinyon-juniper and spruce-fir sites, have dark colored surface horizons of eight inches or more in thickness (Mollisols). In addition to the good topsoil development, there is commonly an increase in clay content in the subsoil compared to the surface texture (Argillic horizon). The soils are moderately productive, but are being limited by short growing seasons due to cold temperatures at the high elevations and limited available moisture at the lower elevations. Between these extremes is a zone typified by the aspen vegetative type, which generally has the most productive soils.

High elevation rangelands have experienced significant losses of soil by erosion. The Manti Division is renowned for land instability and flooding. Landslides, debris avalanches, and mudflows are most prevalent on soils of the North Horn Geologic Formation, particularly where the land and bedrock slopes in the same direction.

Soil erodibility is moderate to high. The soils typically have textures of very fine sandy loam to silty clay loam at the surface. The subsoils are generally finer textured and less permeable. The abundance of steep slopes and occurrence of intense summer thunderstorms are prime factors which relate to high erosion potentials when surface cover is removed.

The soil is recognized as a basic resource necessary for land productivity. Current management has concentrated on increasing vegetative cover and rapidly revegetating disturbed sites. Watershed rehabilitation, improved range management and reclamation stipulations relating to resource development activities have been key methods of improving and minimizing adverse effects on the soil. Watershed restoration projects cover approximately 32,500 acres, while approximately 45,000 additional acres have been identified as needing improvement.

An order 4 intensity level general soil inventory has been conducted on the entire Forest. A more detailed order 3 soil inventory has been completed on the Moab District and San Pitch Division with plans to have the Forest completed by 1992.

The continuing demand for Forest products requires an increase in the intensity of soil management in order to increase productivity. Also, the increase in demand for high quality water resources places additional emphasis on good soil management.

Landslide and Flood Events

The moisture years 1981 through 1984 were above normal in terms of snowpack and total precipitation. The 1983-1984 year broke all records for the Manti and San Pitch Divisions of the Forest.

Record moisture conditions combined with unstable soils and geologic conditions led to mass land movements, mudflows, abnormally high runoff and flooding. Mass land movements and mudflows have impacted and seriously altered vegetation on 5,700 acres. About 167 miles of stream channels were scoured and widened so that existing sediment traps were lost. Some aquatic and riparian habitats within or adjacent to these channels were lost as a result of the scouring and stream channel widening. Surface instability has rendered about 1,200 acres temporarily unsuitable for livestock use and limited wildlife use. Most fisheries were destroyed in 70 miles of stream channel and severely damaged in 87 miles of stream channel. Damage to Forest facilities has also been extensive, including a loss of 113 miles of road on 50 different roads, 40 miles of trail on 24 separate trails, 8 bridges, 15 units in three campgrounds, and 22 miles of range fence. In addition, one lake and one reservoir were destroyed and two dams were breached to protect downstream values.

As authorized by Section 403 of the Agriculture Credit Act, considerable Emergency Watershed Protection (EWP) work has been completed. Through this program, many miles of stream channel clearing and riprapping, willow planting, and other revegetation has been done to provide some level of protection. Forest Service funds have supplemented the EWP program for vast seeding projects on disturbed land and additional erosion control projects for watershed protection.

Emergency Relief of Federally Operated (ERFO) roads repair funds from the Federal Highway Administration have provided funding to initiate repairs of portions of the damaged transportation system. However, actions taken to date, and expected activities under emergency programs will not totally repair the damage. Long-term repairs and rehabilitation needs have been summarized by Forest-wide Flood Damage Disaster Reports for 1983 and 1984.

Restoration of damaged areas or facilities can be locally important. Failure to restore campgrounds, roads, fisheries and range can severely impact those who use and depend upon these facilities or resources.

EXISTING SITUATION

Recreation - Recreation facilities have been damaged at Pinchot, Chicken Creek, Forks of Huntington, Oowah Lake and Ferron Canyon.

Fish and Wildlife - Riparian habitat, stream channels, and flood plains have been severely impacted along miles of stream. Landslides have and continue to deliver large amounts of sediment to the streams. Stream channels and banks continue to erode, contributing large amounts of sediment to the streams and destroying fisheries.

Range - Damaged fences and lost access have increased the cost of operations to the permittees and the cost of management to the Forest Service. Control of livestock is more difficult. Customary livestock movement patterns have been altered.

Timber - The landslides and flooding have damaged over 5,000 acres of National Forest System lands. A portion of these acres contain conifer timber. Early surveys indicate a potential for insect build up which could further damage the timber resource.

Water - Several thousand acres of landslides and 70 miles of stream channel damage have created new and changing watershed conditions. New erosion areas have high sediment deliveries into the streams. Riparian areas have been denuded of vegetation destroying the capacity of these areas to trap and retain pollutants from upslope and destroying the shade that kept the waters cool enough

for trout. The riparian areas, instead of being a protection and buffer zone, have become a sediment source. Gravelly stream channels have been filled with silt. Downstream municipal and irrigation systems must contend with new and higher sediment loads until a level of stability is obtained.

Soils - Denuded soils are subject to severe surface erosion. Meandering streams have and continue to erode highly productive alluvial soils. Stream downcutting has lowered the water table and reduced the productivity of the riparian soils that remain.

Facilities (Roads and Trails) - The landslide and flood disasters of 1983 and 1984 have damaged arterial, collector, and local roads and trails. The associated high water has softened the road and trail prisms so that normal traffic does more damage and normal maintenance is far less effective. These conditions will continue until the area dries out, which is expected to take several years after the precipitation returns to normal levels.

Historic and Cultural Resources - Historical and cultural resources could have been destroyed by landslides and the rapid erosion of stream beds. However, no known historical and cultural sites were identified in the impacted areas.

Protection - The damaged access has made the protection job difficult. Slower initial attack for fires may mean that fires will do more damage before they are controlled.

Minerals - Loss of access increased some exploration and development costs. Greater costs could be incurred if active landslides need to be crossed to access lease areas.

Vegetation

Forest managers have controlled activities and uses that affect vegetation and growing conditions, since the Forest was established during the first decade of the 1900's. The objective of this management has been to provide and maintain a healthy, vigorous environment, capable of producing a range of outputs and conditions. Some vegetative types have been managed in a seral stage that allows for more diversity and higher productivity. In many cases, natural succession has occurred. There are consequences associated with managing vegetation, as well as with allowing natural succession to occur. Natural succession often leads to climax vegetative types that allow for less diversity, and lower productivity.

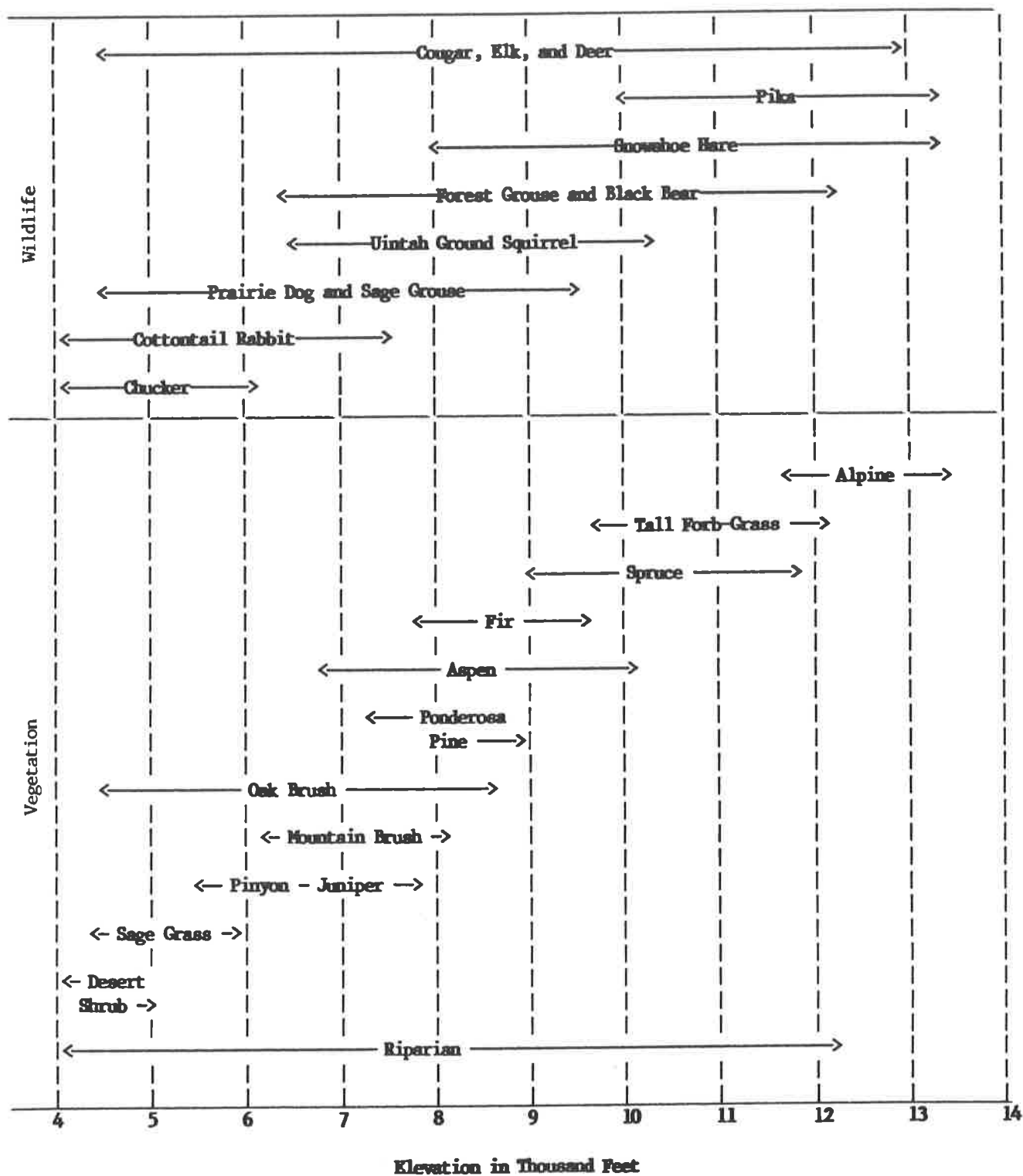
The hundreds of individual plant species which occur on the Forest may be classified into less than a dozen vegetation types. Each type lends a unique character to the landscape and has an associated utility to society. Some vegetative types like those shown on Figure II-2 have narrow elevational ranges. Other types are more tolerant and have a wide elevational range. There are 11 major vegetative types on the Forest. They include: aspen, ponderosa pine, Douglas-fir, mountain brush, pinyon-juniper, sagebrush, and oak brush. The following is a discussion of the current condition and management needs of these types.

ALPINE

The alpine vegetation type occupies less than one percent of the Forest, and grows above native tree elevation limits. It is characterized by grasses, grasslike forbs, low shrubs, and poorly formed trees. Alpine vegetation provides a unique opportunity for scenic viewing particularly during the early summer when wildflowers are in bloom. The most important factors controlling the distribution and growth of alpine plants are available soil moisture and the production of viable seed. Wildlife habitat provided by this type supports elk and mule deer. Pika are unique to the alpine and subalpine types.

Figure II-2

TYPICAL VEGETATION AND WILDLIFE DISTRIBUTION CHANGES WITH ELEVATION



Treatments which modify alpine vegetation are avoided because the short growing season and harsh climatic conditions make this vegetation type very slow to recover. Alpine vegetation will perpetuate itself unless there is severe ground disturbance.

DOUGLAS-FIR (CONIFER)

Douglas-fir generally occurs with ponderosa pine or aspen and occupies about two percent of the Forest, but is more important than its relative area implies. It typically occurs on steep, north-facing slopes at lower elevations, and is frequently the only conifer vegetation in a large area. On south-facing slopes, Douglas-fir occurs sparsely on rocky ridges, steep hillsides, and canyon slopes.

Douglas-fir is a long-lived species which is valued for watershed protection, wildlife habitat diversity, scenic quality, and cover on big-game winter range. The type has not been harvested in the past, resulting in mostly mature and overmature stands. Thus, very little acreage of early successional stages of Douglas-fir are known to exist on the Forest.

Douglas-fir is a climax species that reproduces from seed. Without treatment, stands mature and die, but perpetuate the Douglas-fir type. Currently, the stands have a relatively uniform age structure. Natural succession will perpetuate the current uniform distribution.

SUBALPINE FORB GRASSLAND

Grass and forb vegetation types occupy 17 percent of the Forest and are interspersed with other vegetation types. In the subalpine type, they are extensive and rarely interspersed with aspen and spruce-fir types. Most grasslands support, or are capable of supporting, numerous kinds of perennial grasses and forbs. Forage production on mountain grasslands occasionally exceeds 3,000 pounds per acre; however, yields of 1,000 to 2,000 pounds per acre are much more common.

The forage produced in the grass and forb vegetation types is available for both wildlife and domestic livestock. The open nature of these vegetation types provides a great deal of scenic variety. Management is typically directed at increasing forage while maintaining visual quality.

ENGELMANN SPRUCE/SUBALPINE FIR (CONIFER)

Engelmann spruce and subalpine fir occupies eight percent of the Forest. This type occurs at mid to high elevations and represents the climax on the majority of the sites it occupies. This type usually occupies moist sites. Spruce can grow to over 300 years and fir to 250 years old. They naturally occur in single age stands, but can occur in 2, 3, or multi-story stands as a result of timber harvest or insect infestation. Its dense forest growth and layered appearance provides outstanding scenic views. It is also valued for wildlife habitat, watershed protection, and production of wood products.

Sixty percent of the type is overmature. As the spruce and fir type matures, the trees become susceptible to insect and disease infestations. A balance of structural stages is needed to enhance Forest health and vigor.

The spruce-fir type reproduces by seed, and it will reproduce itself naturally if not treated. The reproduction will retain the same age class distribution as currently exists. These types usually convert to aspen, if a natural catastrophe, such as a major fire, occurs.

ASPEN

The aspen vegetation type occupies 13 percent of the Forest and typically occurs at low and mid elevations interspersed with grasslands, meadows, spruce-fir and ponderosa pine Forest types. At the middle of its elevational range, it may be climax. Aspen stands on the Forest are typically mature to overmature with high disease and mortality levels.

Aspen is important to visual quality. Aspen color, form, and texture contribute to the character in many ways. These include edge contrast between aspen and conifer stands, aspen islands in large meadows, and massive textural blocks. Color is a dominant element in all distance zones, contrasting with surrounding coniferous vegetation, nonforest areas, bare rock, water and sky. The color change between seasons attracts many Forest visitors year-around.

Grasslands and associated aspen ranges often furnish a large part of the forage for livestock grazing on the National Forest.

The aspen ecosystem is important to wildlife. Deer and elk use aspen under six feet in height for forage. They use taller aspen for thermal and hiding cover. Aspen sprouts above snowcover are critical to winter diet in some areas. The grass, forb and shrub understory provide a summer food source as more forage is present than in conifer stands. Aspen forests are prime elk calving and deer fawning habitat. This is especially true on south slopes within one-fourth mile of water between winter and summer range. Aspen management in transitory big-game range helps support the animals longer in the spring and fall. This takes pressure off summer and winter range and provides extra forage during mild winters.

More songbirds are normally observed in aspen forests than in coniferous forests. Aspen provides food, nest sites, and cover for warblers, vireos, blue grouse, owls, raptors, thrushes, kinglets, and a variety of other birds. Small mammals such as shrews, moles, and mice derive their food, cover, and nest sites from aspen understory and leaf litter. Aspen along riparian areas is the basic food for beaver.

Overmature aspen stands are usually decadent and provide cavities and insects for bird and mammal species. Aspen stands are usually in close proximity to conifer stands that can provide cover during aspen regeneration.

Recently, there has been increasing interest in aspen for sawtimber, waferboard, particle board, and fuelwood.

Aspen regenerates almost exclusively through root sprouting. This results in clones which are genetically identical to the trees from which they originated. Trees within one clone are very homogeneous in such characteristics as rate of growth, form, vigor, resistance to disease, and time of leaf break and leaf fall. These characteristics often vary widely between clones due to genetic and site differences.

To stimulate root sprouting, the majority of aspen clones require a major disturbance that results in the death or removal of most or all of the existing trees. Wildfire has historically been the primary disturbance initiating root sprouting. Control of wildfire has permitted many aspen stands to become overmature with no means of regenerating themselves. In the absence of disturbance much of the aspen type is rapidly converting to conifer. This is shown by comparing the 1915 and 1965 timber inventories on the Manti Division. Aspen declined 34 percent, from 194,245 acres to 127,831 acres, during this period. The loss of this aspen has obvious resource implications. In order to maintain the aspen on the Forest, approximately 1,600 acres should be treated annually.

PONDEROSA PINE

This vegetation type occupies six percent of the Forest and occurs throughout the Forest. The LaSal Division has most of this type. It is located between 7,000 and 9,000 feet, either in pure stands or associated with aspen and oak brush. Ponderosa pine reproduces by seed. Natural regeneration requires the combination of a good seed crop, favorable seedbed conditions, and ample moisture in the spring following seed fall to assure germination and seedling survival.

Historically, low-intensity wildfires burned through ponderosa pine stands at frequent intervals. These fires had little effect on pole size or larger trees because of their thick bark. These fires prevented duff accumulations and kept competing vegetation in check, thus maintaining seedbed conditions favorable to ponderosa pine. Fire suppression over the past several decades has resulted in a buildup of organic litter, making seedbed conditions less favorable for ponderosa pine. Currently two distinct conditions exist on the Forest. The first is mature to overmature stands, open grown and generally poorly stocked, which need to be harvested and the areas regenerated. The second is stands released from an overstory which was removed during the earlier accelerated harvest. These stands are young, becoming stagnated or are stagnated and in need of thinning. Many of them are of minimum merchantability, being available for commercial thinning entries.

Ponderosa pine is important for timber production, livestock grazing, and wildlife habitat. Elk calving occurs in this type at lower elevations.

Ponderosa pine is considered a climax species on many of the sites on which it occurs, particularly near the center of its elevational range. Major disturbances, such as high-intensity fires, heavy logging, or widespread mortality from insect or disease infestations may cause ponderosa pine sites to revert to more seral stages such as aspen, oak brush, or grass. The mountain pine beetle is currently at high levels in some stands.

MOUNTAIN BRUSH

This vegetation type occupies six percent of the Forest and is dominated by one or more of the following species: serviceberry, rabbitbrush, snowberry, four-wing saltbush, cliff rose, prunus species and mountain-mahogany. The primary value of the type is for wildlife habitat and domestic sheep range. It has particular importance when used as big-game winter range. There is a significant imbalance in the structural stages with most of the type in intermediate and late stages. Without disturbances such as fire or chaining, the type will maintain itself in the mature stages, or become decadent and be replaced.

PINYON-JUNIPER

This vegetation occupies 21 percent of the Forest. It is a widespread scrub woodland type generally occupying the lower elevations on the Forest.

The pinyon-juniper type occurs on the driest sites on the Forest and is the least productive type. Vegetation is characterized by small size and low growth rate. The type provides forage for wildlife and livestock, adds scenic variety to the landscape, and furnishes products such as fuelwood, posts, and Christmas trees. It is important cover on big-game winter range. Most of the type is estimated to be in the intermediate and late structural stages which reflects the lack of recent natural disturbance.

As a result of successional change, pinyon-juniper often expands into sage-grass sites. Many of the mature pinyon-juniper sites have little or no understory species. Many acres of pinyon-juniper have been treated through revegetation practices. These sites are now in the early seral stages of the pinyon-juniper successional chain. If not maintained, these sites will return to a more mature successional stage resulting in a decline in forage production as the pinyon-juniper dominates the site by taking moisture, nutrients, sunlight, etc., that the understory species need for survival.

SAGEBRUSH

This vegetation type occupies 10 percent of the total Forest and normally occurs on relatively dry sites at all elevations. Owing to climatic conditions, it is most common to lower elevations. Sagebrush can be an invader species that may eventually take over other sites. It provides a scenic desert-like landscape and forage for big game and occasionally livestock. Most of the type is in intermediate and late structural stages. Prescribed burning and mechanical or chemical treatment are used to treat this type when necessary to convert to other types.

OAK BRUSH

The oak brush vegetation type, principally Gambel oak, occupies 16 percent of the Forest and commonly occurs with vegetative types from ponderosa pine down to desert shrubs. At its lower elevation range, it is frequently associated with pinyon-juniper trees. At its upper limit it is often interspersed with aspen, Douglas-fir, or ponderosa pine.

The type provides watershed protection, retards snowmelt, provides browse for wildlife and domestic stock, and is a popular fuelwood species. Gambel oak is capable of reaching tree size on some sites. This savannah type and its associated understory provide highly productive useable forage for wildlife and livestock. The mature trees provide cavities for small mammal dens and non-game bird nests, and is important for accipiters such as sharp-shinned and cooper hawks. Food production for deer and turkey is highest on these sites. Younger Gambel oak stands are often thick, severely restricting animal mobility, and shading out the more palatable grasses and forbs.

Currently, the majority of the Gambel oak type is estimated to be in an early seral stage. A more balanced structural distribution would improve this type for wildlife and domestic stock, and increase the landscape's visual diversity.

RIPARIAN

The riparian ecosystem type occupies one percent of the Forest and occurs in areas with year round high water tables. This type occurs at all vegetative transitional zones and consequently, most of the distinct vegetation types on the Forest are represented in riparian areas. The riparian area often includes willow, cottonwood and alder. These areas are typically located adjacent to streams and around springs, lakes, or bogs. While small in total area, they represent delicate, very important habitat for wildlife and fish. About 86 percent of the wildlife on the Forest are dependent on this vegetative type for a significant portion of their habitat. Normally, lush riparian vegetation serves as a sediment trap and improves quality of water runoff. Desirable forage production is high, and these areas are an important part of grazing allotments. The riparian type also provides visual diversity and some timber management potential. Riparian areas are important for recreation, as campgrounds are often built nearby and dispersed activities are popular.

Without protection and maintenance of this ecosystem, it may steadily decline.

NOXIOUS AND POISONOUS PLANTS

Noxious weeds occur at all elevations throughout the Forest, though control is mostly confined to the Manti Division. Musk thistle, white top and Canada thistle are the weeds targeted for major control efforts. Dyers woad, toad flax, and Russian knapweed are the other noxious weeds that are present on the Forest in small numbers. These weeds are also being controlled as available funding permits. Cooperation with Sanpete, Juab, Emery, and San Juan Counties weed control districts has helped with the control of many weeds growing along the Forest Development Roads and in other accessible areas on the Forest.

Poisonous range plants are one of the major causes of livestock loss on open range lands. Reported losses attributed to these plants average 700 animals per year. There are 21 species of plants that are considered poisonous to livestock on the Forest. Two species, tall larkspur (*Delphinium bankeyi*) and low larkspur (*Delphinium nelsonii*), have caused about 90 percent of the total loss.

Economic and Social Setting

Carbon, Emery, Grand, Juab, Sanpete, San Juan, and Utah Counties in Utah, and Mesa and Montrose Counties in Colorado are Counties which encompass the Forest and are affected by management of the Forest.

Economic factors of population, income, and employment are displayed by County and Human Resource Unit (HRU) for the base year 1980. The social analysis is discussed by Human Resource Units in the Social Setting section (following).

Population

Total population of the HRU's in 1980, based on the 1980 census and population projections from the Utah State Planning Office and the County Associations of Government, is 180,156 people.

Income

The average 1980 per capita income of the eight counties was about \$6,900, a 254 percent increase since 1970. The personal income was \$165.2 million in 1980.

Employment

Employment in the eight county area is estimated to be 61,300 jobs, of which 2.4 percent (1,448 jobs) are a direct result of activities on the Forest. Table II-2 shows how employment (influenced by the Forest) is distributed among various employment sectors. The population supported by that employment is 7,100. The average total unemployment for the Counties in 1980 was 5.5 percent.

TABLE II-2

EMPLOYMENT INFLUENCE OF THE FOREST
IN MAN YEARS - 1980

Forest Service Programs	165
Minerals Industry	1,100
Recreation Industry	15
Timber Industry	10
Range Industry	154
Other Industry	4
Total	1,448

Payments to Counties

Each year, 25 percent of the value of receipts from Forest activities is returned to the State for distribution to the counties in which the Forest is located (see Table II-3). The following components comprise the receipts that make up the "25 percent fund".

-Value of Timber Harvested	-Mineral Permits
-Land Use Permits	-Recreation User Fees
-Recreation Permits	-Grazing Fees
-Power Permits	

A major source of funds to counties is from oil and gas and coal lease payments and royalties. These funds are distributed to the county by the Bureau of Land Management, the leasing agency, and are not included in the dollars shown in Table II-3.

Counties have also received Payments In Lieu of Taxes (PILT) funds. These payments are based on the number of acres of National Forest System lands in each county. This program of payments in lieu of taxes is dependent on annual Congressional appropriations, and is administered by the Bureau of Land Management.

TABLE II-3

PAYMENTS TO COUNTIES IN DOLLARS - 1980

County	State	25% Fund	Payments (In Lieu of Taxes)
Carbon	Utah	2,491	\$337,532
Emery	Utah	17,560	\$343,277
Grand	Utah	4,745	\$327,201
Juab	Utah	7,655	\$289,310
Sanpete	Utah	30,188	\$367,287
San Juan	Utah	37,164	\$401,777
Sevier	Utah	2,451	\$ 17,084
Mesa	Colorado	374	\$ 80,967
Montrose	Colorado	1,861	\$ 36,683

Forest Zone of Influence

The Forest Zone of Influence encompasses three Social Resource Units (SRU). Two of these SRU's contain Human Resource Units (HRU) where activities on the Forest directly influence communities and/or public welfare, and where community affairs can directly affect the Forest or its management. The SRU is an accumulation of HRU's, but where the community relationship to the Forest is indirect or less direct, and the issues are broader or regionally oriented. The three SRU's are described as follows.

WASATCH MEGALOPOLIS SOCIAL RESOURCE UNIT

The west escarpment of the Wasatch Mountains, Utah Lake, and the Great Salt Lake create boundaries to a corridor that is 100 miles long, and averages 10 miles wide. Within this corridor is the Wasatch Megalopolis, a rapidly growing, urban area with an industrial/commercial based economy. It is a major distribution and supply center for the Intermountain area. It contains the highest concentration of Black, Spanish American and Oriental minorities in the State.

Based on recreation use information, people from Wasatch Megalopolis account for 30 percent of the recreation use on the Forest, and may feel a vested interest in the Forest. Many are persons who left the small communities adjacent to the Forest during the 1940's and 1950's and who feel that a visit to the Forest is like going home. These people use the full range of recreation opportunities within the Forest. They are especially dependent on the Forest for big-game hunting, camping facilities, and to a lesser extent, fishing and fuelwood gathering.

CENTRAL UTAH VALLEY SOCIAL RESOURCE UNIT

This SRU includes several HRU's in the Sevier River and Sanpete River Valleys, and the Juab Valley in Central Utah. The HRU's that have a direct relationship with the Manti-LaSal National Forest are the Juab and the Sanpete HRU's.

Human Resource Unit Description - The Juab HRU is bound by the San Pitch-Mount Nebo Divides on the east, by Long Ridge and West Hills on the west, by the ridge between Chris Creek and the Sevier River on the south, and by the ridge between Mona and Utah Lakes on the north. Communities in the valley include Nephi, Mona, and Levan.

The Sanpete HRU includes Sanpete Valley and extends into the Sevier River Valley to include Gunnison and the other nearby communities in Sanpete County. The HRU is bound by the Wasatch Plateau on the east, the San Pitch Mountains on the west, and the San Pitch-Thistle divide on the north.

Human Resource Unit Characteristics - Native Americans occupied the Sanpete HRU until the late 1840's and the Juab HRU until the early 1850's, when Mormon colonists settled these areas. The Mormon pattern of settlement was community living with commuting to farm or rangeland. Communities were established where water was available and at strategic locations to protect the travel-way from Salt Lake City to the settlements in Southern Utah. In the Juab HRU, the early trails have become modern highways and communities along these routes are important service centers to travelers. During the 1950 to 1970 period, the local economy of the Sanpete HRU could not support community growth causing an out-migration from the area. Improved access across the Wasatch Plateau in the early 1970's made it possible for local residents to commute and find employment in the power plants and coal mines adjacent to Castle Valley.

Some light industry has moved into both HRU's to take advantage of the labor supply. This has resulted in some community growth.

Agriculture and agricultural activities have always been an important factor in the communities of the Sanpete and Juab HRU's. Sanpete County ranks in the top 10 Counties in the United States as a producer of turkeys.

In the Sanpete HRU, mining is a relatively new job source, but has leveled off until low sulfur coal regains its prior importance. Locals commute outside the HRU to the mines in Salina Canyon or across the Plateau to mines in Huntington Canyon or Scofield (Pleasant Valley).

Both HRU's have light industry and manufacturing that is important to the local economy. In the Juab HRU, service industries cater to tourists or to the long haul truck industry. Snow College in the Sanpete HRU also provides some support to the local economy and adds to the lifestyle.

Commercial recreation activities include theaters, golf courses, and bowling. Communities support Little League Baseball, Bantam basketball, football, soccer and tennis programs. Churches and schools provide cultural events, dances, sports competition, and a myriad of other activities for members of the communities. However, these do not diminish the demand placed on the Forest to provide opportunities for hunting, fishing, camping, horseback riding, backpacking, cross country skiing and snowmobiling. Fuelwood gathering and cutting the family Christmas tree are a traditional part of the family activities.

The majority of the residents in both HRU's are favorable of Forest Service management activities in the HRU's. They are generally development oriented, and believe that the consumptive use of Forest resources is appropriate. Maintenance of traditional uses and values is very important and residents recognize the need to protect high quality scenic values and recreation values which add to their economy or employment.

Both HRU's have the basic medical, educational, fire and law enforcement social services. Major medical and educational requirements are normally met in the larger population centers of the Wasatch Megalopolis.

Populations are increasing moderately throughout the HRU's with a larger percentage increase in communities such as Nephi and Ephraim which provide the greatest amenities.

The majority of the private land is used for farming. Some subdivisions of private land are occurring near communities and usually on land historically used for farming.

SOUTHEASTERN UTAH SOCIAL RESOURCE UNIT

This SRU is the Colorado Plateau area, bordered on the north by the Book Cliffs; on the west by the East Escarpment of the Wasatch Plateau, Thousand Lake Mountain and Boulder Mountain; on the south by the Utah-Arizona State line; and on the east by the Dolores River Valley. It is a large, lightly populated SRU. With basic economics related to interstate transportation, mining, recreation, and some agriculture. In addition to the D&RGW Railroad, the area is crossed by I-70, US 50&6, US 191, and US 61. The unit contains major tourist attractions in three National Parks, three National Monuments, two State Monuments, six State Parks, and one National Recreation Area.

Three HRU's in Southeastern Utah SRU have a direct relationship with the Manti-LaSal National Forest. These are the Carbon-Emery, Moab, and San Juan-Abajo HRU's.

Human Resource Unit Descriptions - The Carbon-Emery HRU is bound on the north by the Book Cliffs, on the west by the water divide on the Wasatch Plateau, on the south by Interstate Highway 70, and on the east by the water divide in the San Rafael Swell. The communities in this HRU are Price, Helper, East Carbon, and Wellington in Carbon County; and Castle Dale, Orangeville, Huntington, Ferron, Cleveland, Elmo, Emery and Moore in Emery County. These communities are all in Castle Valley which lies between the East Escarpment of the Wasatch Plateau and the west edge of the San Rafael Swell.

The Moab HRU has indistinct boundaries. It is made up of communities adjacent to the LaSal Mountains. Beyond these communities, there is a vast desert area where suitable habitation is limited. The communities in this HRU include Moab and LaSal in Utah and Paradox and Gateway in Colorado.

The San Juan-Abajo HRU has indistinct boundaries. It is made up of communities adjacent to the Blue Mountains and the farms and ranches on the pediment that extends eastward into Colorado and southward toward the San Juan River. Suitable habitation to the north and west is limited by the desert and canyonlands. Communities include Blanding, Monticello, and Bluff. Half the population, Native Americans, live in scattered rancherias on the Navajo or Ute Reservations.

Human Resource Unit Characteristics - The first occupancy in the three HRU's of the Southeastern Utah SRU was by Native Americans in the San Juan - Abajo HRU as far back as 8000 B.C. There have been several periods when the area was settled then abandoned. Utes and Navajos were in this area when the first cattlemen arrived out of Colorado and New Mexico in the early 1820's. Communities were established in this HRU by the Mormon Colonists in the 1880's.

Mormon colonization in the Moab HRU area failed in the 1850's because of trouble with Native Americans, but was reestablished in the mid 1870's when cattlemen moved into the area.

The first colonization in the Carbon-Emery HRU occurred in 1877 by a group of Mormons.

Mormon settlements were based on a pattern of settling near water, community living and commuting to farms or ranches. Agriculture was the foundation for most early settlements. Mining became an important economic factor in the late 1800's in the Carbon-Emery and San Juan-Abajo HRU's. Early coal mining in the Carbon-Emery HRU was followed by the production of oil and gas. Beginning in the early 1970's, migration began to this area as a result of coal powered electrical generation development, the world oil shortage and a demand for low sulfur coal. Some gold and silver mining occurred into the early 1900's in the San Juan-Abajo HRU. In the early 1950's, mining of uranium and vanadium became important to the economy of the San Juan-Abajo and Moab HRU's, but a recent decline in the market for uranium has caused a near close down of this mineral industry.

Settlement was also augmented by the construction of the Denver Rio Grande Western Railroad in the late 1800's. New communities grew up by the railroad.

During the 1960's, tourism became an important industry for the Moab HRU, and to a lesser degree the other HRU's, as a result of the establishment of several State Parks and two National Parks in the area.

Some communities have grown because of the demand for support services and transportation to accommodate local industry, agriculture and government.

The major sources of employment in the San Juan-Abajo and Carbon-Emery HRU's are farming, ranching, mining, some light manufacturing and related support and transportation services. Electrical energy production is a big employer in the Carbon-Emery HRU. While mining and related activities are becoming less active in the Moab HRU, the tourist service industries are developing. Tourism also provides employment to the communities of the San Juan-Abajo HRU.

Price provides urban type amenities to those in the Carbon-Emery HRU, while rural amenities are available in many small communities in all three HRU's. Commercial recreation opportunities vary from community to community but include golf, bowling, theaters, rollerskating, and social clubs. The larger communities support baseball, football, swimming, tennis and related activities. Churches provide cultural, social and athletic activities for members of the communities. The public schools and the College of Eastern Utah in Price provide cultural and athletic activities, especially for the youth. On the Native American reservations of the San Juan-Abajo HRU, traditional activities still occur.

The Forest provides opportunities for hunting, fishing, vehicular travel use, camping, boating and picnicking, as well as fuelwood gathering. Winter activities including snowmobiling, cross country skiing and downhill skiing at Blue Mountain. Dark Canyon Wilderness provides limited primitive recreation opportunities. In the Carbon-Emery HRU there is a high ratio of four-wheel drive vehicles per capita, as well as off-road motorcycles, ATV's, campers and boats. The majority of the recreationists prefer dispersed area camping over developed site use. Local populations also depend upon the Forest for climatic relief.

The majority of the residents in all HRU's are favorable of Forest Service management activities. They are generally development oriented and believe that the consumptive use of Forest resources is appropriate. However, they want to maintain some traditions and traditional uses. They recognize the need to protect scenic and recreational values for economic and environmental reasons.

All HRU's have medical, educational, fire and law enforcement basic services. Major medical or social requirements are normally met in larger population centers in the Wasatch Megalopolis.

Population changes in the San Juan-Abajo HRU are generally equal between the two major communities, although other communities close to development activities are growing. The majority of the private land is used for farming.

Population fluctuations in the Moab HRU are confined to the Moab and Spanish Valley areas. The rest of the communities in this HRU are quite stable and experience little recent change. In the Carbon-Emery HRU, communities that provide the greatest amenities grow more rapidly and decline slower than the others. Development occurring in the north end of the HRU has encouraged growth to nearby communities. In these two HRU's, the majority of the land is used for ranching. Some subdivision of private land is occurring near communities and usually on land historically used for farming. In some areas, the private land in or adjacent to the Forest is used for second or recreational homes. Counties have adopted ordinances to control the type and amount of these developments.

Resource Elements

Table II-4 displays trends for key Forest resource outputs. Trends shown include estimated demand, output potential where management maximizes resource production (single-use emphasis), and output potential where management optimizes resource production with other resource outputs (multiple-use emphasis). For comparison purposes, the current level is also shown.

TABLE II-4

SUPPLY POTENTIAL AND EXPECTED DEMAND FOR FOREST RESOURCES
(In Annual Average Units)

Resource	Category	Present Level 1980	Time Periods		
			1986 1995	1996 2005	2006 2036
Developed Recreation in MRVD's	Current Level	358			
	Estimated Demand		400	506	618
	Resource Maximum Capacity		400	2,800	6,990
	Multiple-Use Optimum Capacity		400	1,080	2,271
Dispersed Recreation in MRVD's	Current Level	987			
	Estimated Demand		1,027	1,448	1,764
	Resource Maximum Capacity		835	1,263	6,049
	Multiple-Use Optimum Capacity		800	1,159	2,271
Wilderness Management in M-Acres	Current Level	0			
	Estimated Demand		45	45	45
	Resource Maximum Capacity		45	45	45
	Multiple-Use Optimum Capacity		45	45	45
Deer Habitat Capacity in M-Numbers	Current Level	32			
	Estimated Demand		26	29	39
	Resource Maximum Capacity		50	60	69
	Multiple-Use Optimum Capacity		50	55	61
Elk Habitat Capacity in M-Numbers	Current Level	4.4			
	Estimated Demand		16.0	32.0	42.0
	Resource Maximum Capacity		6.0	8.0	13.6
	Multiple-Use Optimum Capacity		5.0	6.5	8.0
Range Use Capacity in MAUM's	Current Level	149			
	Estimated Demand			Not Estimated	
	Resource Maximum Capacity		160	165	181
	Multiple-Use Optimum Capacity		155	160	175
Timber Program Sales M-Cubic Feet	Current Level	1.0			
	Estimated Demand		0.6	0.6	0.6
	Resource Maximum Capacity				2.5
	Multiple-Use Optimum Capacity				1.1
Fuelwood Program M-Cubic Feet	Current Level	1.9			
	Estimated Demand			Undefined	
	Resource Maximum Capacity				4.1
	Multiple-Use Optimum Capacity				2.5
Water Yield Recreation in MRVD's	Current Level	.731			
	Estimated Demand			Not Estimated	
	Resource Maximum Capacity		.731	.731	.733
	Multiple-Use Optimum Capacity		.731	.731	.731
Coal Production in MM-Tons	Current Level	5.6			
	Estimated Demand			Undefined	
	Resource Maximum Capacity		11.3	18.3	50.0
	Multiple-Use Optimum Capacity		11.3	17.8	50.0

Recreation

Recreation pursuits include wood gathering, sightseeing, fishing, snowmobiling, camping, or just relaxing in the Forest environment. Recreation use is especially heavy during times when coal mines are shut down, on holidays, and during the big-game hunting seasons. People from the Wasatch Front are attracted to the Forest by big-game hunts, and by opportunities for snowmobiling, camping, and sightseeing.

About one million recreation visitor days (RVD's) are spent on the Forest annually in diverse opportunities. The Recreation Opportunity Spectrum (ROS) System has been used in identifying the continuum of opportunities and stratifying them into classes for both developed and dispersed use. Each class contains important relationships among selected activities, preferred environmental settings, and expected recreational experiences. The ROS class experience levels are grouped as follows:

Primitive - Remote from the sights and sounds of humans, independence, closeness to nature, tranquility, and self-reliance through the application of woodsmen and outdoor skills in an environment that offers a high degree of challenge and risk.

Semiprimitive Nonmotorized - Generally isolated from the sights and sounds of humans, independence, closeness to nature, tranquility, and self-reliance through the application of woodsmen and outdoor skills in an environment that offers challenge and risk.

Semiprimitive Motorized - Some isolation from the sights and sounds of humans, independence, closeness to nature, tranquility, and self-reliance through the application of woodsmen and outdoor skills in an environment that offers challenge and risk. Opportunity to have a high degree of interaction with the natural environment. Opportunity to use motorized equipment while in the area.

Roaded Natural Appearing - Less isolation from sights and sounds of humans. Opportunity to have a high degree of interaction with the natural environment. Challenge and risk opportunities associated with more primitive type of recreation are not very important. Practice and testing of outdoor skills might be important. Opportunities for both motorized and nonmotorized forms of recreation are possible.

Rural - High probability of affiliation with individuals and groups plus the convenience of developed sites and opportunities. These factors are generally more important than the setting of the physical environment. Opportunities for wildland challenges, risk-taking, and testing of outdoor skills are generally unimportant except for specific activities like downhill skiing, for which challenge and risk-taking are important elements.

DEVELOPED RECREATION

Developed recreation occurs at areas with facilities constructed especially for recreation. Developed public recreation sites on the Forest include: 20 family type campgrounds, four family type picnic grounds, one winter sports site, one boating site, seven minor interpretive sites associated with an auto tour, four isolated minor interpretive sites, three recreation residence subdivisions comprised of 34 total individual residences, and nine isolated recreation residences. There are two privately-owned resort type facilities under special-use permit. These developed recreation sites utilize 1,484 acres and can support approximately 415,000 RVD's annually under current site conditions.

The inventoried capacity of the National Forest is 5,192,000 developed RVD's of summer use on 11,395 acres. Table II-5 displays campground rehabilitation and expansion needs. Demand is projected at the same rate of increase as the local population. There is no inventory for developed winter use because of the limited demand.

TABLE II-5

CAMPGROUND REHABILITATION AND EXPANSION NEEDS

<u>Campground</u>	<u>Rehabilitation Year*</u>	<u>Expansion Year**</u>
Twelve Mile Flat	1976	1986
Manti Community	1982	1993
Pinchot (Vice)***	1988	2007
Lake Hill	1993	2028
Maple Canyon	2004	2030+
Chicken Creek	1989	2014
Spring City	2030+	2030+
Ferron Reservoir	1983	1993
Joes Valley	1984	1995
Indian Creek	2030+	2030+
Ferron Canyon	2030+	2030+
Flat Canyon	1975	1981
Gooseberry	1984	1996
Forks of Huntington	1984	1996
Old Folks Flat	1984	1984
Fish Creek	1980	2030+
Buckeye	1981	1998
Pack Creek	1986	2004
Owah Lake	2030+	2030+
Warner	2008+	2029
Dalton Springs	1973	1980
Buckboard	1990	2005
Red Bluff	1982	2018
Devil's Canyon	2007	2030+

* Based on projected use exceeding 20 percent of theoretical capacity.

** Based on projected use exceeding 30 percent of theoretical capacity.

*** Pinchot is to be replaced by another campground at a new location.

Use of National Forest developed recreation sites is approximately 240,000 RVD's annually. This use is expected to triple over the next 50 years. At this rate, demand for the Manti-LaSal National Forest is expected to exceed supply at some sites starting in the year 1990. Table II-6 displays developed recreation existing use and estimated demand use at the year 2030.

Near the Forest, there are ten State developed recreation areas and five National Parks, Monuments and Recreation areas. National and State parks in addition to Bureau of Land Management facilities are located at lower elevations and do not provide opportunities for people seeking the higher elevation experiences typical of the National Forest System lands.

Private lands and some State lands have potential for recreation development within and adjacent to the Forest boundary. The current major use on private lands is for dispersed type recreation. There is a trend toward subdivisions for recreation residence development. Some lands, especially those next to reservoirs on the Forest, possess a high recreational value.

TABLE II-6

DEVELOPED RECREATION
EXISTING USE AND ESTIMATED DEMAND

ROS Class	RVD's	1980 Base	RVD's	2030 Demand
		Gross Acres		Gross Acres
Roaded Natural Appearing	131,750	1,054	256,616	2,836
Rural	<u>108,700</u>	<u>1,484</u>	<u>473,494</u>	<u>4,752</u>
Total	240,450	2,538	730,110	7,588

DISPERSED RECREATION

Dispersed recreation occurs outside of areas where facilities are built especially for recreation. It occurs mostly along or adjacent to roads, and includes activities such as driving for pleasure, camping, hiking or mechanized trail use, hunting, fishing, and wilderness travel.

Dispersed recreation use totals approximately 690,000 RVD's annually. Factors such as population growth, leisure time, and energy costs have an affect on this use. As dispersed recreation activities on the Forest increase, use will need to be controlled or limited in certain areas in order to reduce resource damage and/or conflict with other resource uses while maintaining the desired opportunities and quality of the recreation experience. Table II-7 displays dispersed recreation existing use and estimated demand at the year 2030.

TABLE II-7

DISPERSED RECREATION
EXISTING USE AND ESTIMATED DEMAND

ROS Class	RVD's	1980 Base	RVD's	2030 Demand
		Gross Acres		Gross Acres
Primitive	2,806	48,082	20,800	48,082
Semiprimitive Nonmotorized	18,162	117,891	58,256	117,891
Semiprimitive Motorized	158,194	831,807	473,287	831,807
Roaded Natural Appearing	<u>524,036</u>	<u>413,672</u>	<u>1,587,912</u>	<u>413,672</u>
Total	703,198	1,411,452	2,140,255	1,411,452

Cultural, Historical, and Paleontological Resources

Sites displaying prehistoric and historic evidence of man and paleontological values constitute an important non-renewable resource of the Forest that have and can be adversely affected by natural forces, vandalism, and project implementation. In addition to protecting these resources, Forest activities should provide for general inventory and as appropriate, nominate sites to the National

Register of Historic Places, develop interpretive sites, and identify areas needing further inventory (see 36 CFR 219.24). Evaluation of sites by Forest personnel, consultants, or academic institutions is likely to increase and eventually lead to completion of the general inventory of sites on the Forest.

These resources found on the Forest are very diverse in type and size, because of a wide spectrum of vegetation, topography, time, and geologic formations.

PALEONTOLOGY

The North Horn Formation is world renowned for its unique and very important fossil mammals, dinosaurs, and lizards. A North American Provincial Land Mammal "Age", the Dragonian, is based on fossil mammals found on the Manti Division. Recent discoveries indicate the great potential for significant future studies in this formation. The known fossil producing portions of the North Horn Formation are found only within the Manti-LaSal National Forest.

The Morrison Formation is also known world-wide for its fossilized dinosaurs, mammals, and plants. Other formations likely to contain significant paleontological resources include the Dakota, Burro Canyon, Green River, and Blackhawk Formations. However, fossils are found in nearly all of the sedimentary rock formations exposed on the Forest, and important fossils could be found in any of them, including the unconsolidated Quaternary deposits as evidenced by the recent discovery of mastodon bones in the sediments of an ancient natural pond.

PALEO-INDIAN STAGE

A few isolated finds in Utah possibly relate to this earliest period of known human habitation in this part of North America a period of about 10,000 B.C. to about 5,000 B.C. None of these finds have been on this Forest, but the potential exists for such.

ARCHAIC STAGE

A reduction of vast herds of large game animals that Paleo-indians apparently relied on may have led to a change in general lifestyle termed the Archaic. The relationship between Paleo and Archaic peoples is at present unknown. The Archaic may not necessarily be an out-growth of Paleo, but could have existed concurrently. Verifiable Archaic sites on the Manti-LaSal are few, less than one percent of the total, though some of the presently undatable lithic scatters could be from that period.

FREMONT CULTURE (MANTI DIVISION)

Sedentarism in the Fremont area began somewhere about A.D. 400 and is absent after about A.D. 1250. Evidence for a completely settled life is not found as much nomadic hunting and gathering, at least during certain seasons of the year, seems to have taken place even from people living in pithouse villages. Thus, rather than a complete change in lifestyle, Fremont subsistence could be a part of a general Archaic model where local populations exploit local resources. About 15 percent of the presently known and dateable sites on the Manti Division are from this period.

PUEBLO PEOPLES (MOSTLY MONTICELLO DISTRICT)

The Pueblo people were contemporary with the Fremont culture, but in a different location. These people first lived in pithouses and slab-lined rooms, later in villages of surface rooms (sometimes of several stories) and still later in cliff structures. They cultivated crops, and apparently domesticated animals such as dogs and turkeys. Small room blocks and single rooms can

be found called "field houses" for limited use while tending crops away from larger villages. Over 71 percent of the known sites on the Monticello Ranger District are Pueblo. The end of the 13th century A.D. saw a nearly complete abandonment of the area.

PREHISTORIC AND HISTORIC TIMES

Before the brief Spanish explorations in the late 1700's, Ute/Southern Paiute groups sparsely inhabited the region. In the early 1800's, the fur trade reached Utah. In the middle and late 1800's, Mormon colonization caused a great increase in population and changed visible lifestyles.

CURRENT USES AND MANAGEMENT

The Forest has collected and documented information about historic, prehistoric, cultural, and paleontological resources. This information is found in the following sources:

- Cultural resource surveys and overviews completed by various groups including local universities, contractors, and the Forest Service. These describe prehistoric sites on the Forest.
- An atlas of standard U.S. Geological Survey quadrangle maps marked with surveyed cultural resource sites and project boundaries. Access to the atlas by the general public is restricted to protect the sites from vandalism.
- A Forest Service computerized data base that indicates the presence or absence of cultural resource sites within a given land unit. The sole function of this source is to determine whether protection measures are needed for a project in a specific location. Access to the data base is restricted to protect the sites.

During the late 1950's and early 1960's, the archeological values on the Monticello Ranger District became apparent. Some actions at that time included recommendations for archeological withdrawals and the preparation of preliminary interpretive facility designs. These actions greatly anticipated the National Environmental Policy Act (NEPA) in 1969. NEPA led to the employment of an archeologist on the District to protect and manage the resource. The archeologist was also hired to fulfill the requirements of Executive Order 11593. This Executive Order required a complete inventory of sites on Federal lands, nomination of eligible sites to the National Register, and the preservation of significant cultural resources. The 1979 Archeological Resources Protection Act supported this Executive Order and made provisions for civil and criminal action to protect the resource.

Early Forest cultural inventories were sporadic and generally incomplete. However, beginning in the early 1970's, mostly on the Monticello Ranger District, large scale organized surveys were made by the Forest Archeologist in cooperation with Brigham Young University and Weber State College. During the mid 1970's, a private contractor surveyed the Manti Division in conjunction with coal leasing activities. In recent years, cultural surveys or cultural evaluations have been made prior to ground-disturbing activities. Protection measures are undertaken whenever a cultural or paleontological site is found. Through these inventories/evaluations, the Forest is gradually gaining an inventory of the resource. About eight to ten percent of the acreage of the Forest has been surveyed in mappable blocks. Very little analysis or long-term recommendation work has been done. No stabilization or interpretative work has taken place.

The location of known cultural and paleontological resource sites and areas of potential sites is kept confidential to protect them from vandalism. Vandalism of sites is currently increasing because of the high market values for artifacts. As an example, a reexamination of an area in 1985 showed 90 percent of the sites vandalized, where in the early 1970's, the area showed less than 10 percent of the sites vandalized.

Many of the Forest administrative structures are over 50 years old and could be considered cultural resources. Most of these are structurally sound and in use. Others have outlived their usefulness or are beyond repair, and are being considered for demolition.

Older buildings within the Forest are being evaluated to determine their historic significance. Those found to qualify for the National Register of Historic Places will be nominated for inclusion. These facilities that are selected will be appropriately signed and interpreted.

Visual Resource

National Forest System lands provide a diversity of views in foreground, middleground, and background when viewed from on or off Forest.

The Manti Division provides varied quality in viewing. Above average views are composed at high elevation plateaus, in canyons displaying a high degree of visual landscape diversity, around moderate to large size water impoundments, and at areas containing large, near vertical cliff escarpments. Below average views are composed of relatively flat appearing sagebrush covered expanses.

The Manti Division also serves as middleground and background when viewed from cities and towns such as Price, Huntington, and Orangeville on the east; Manti, Ephraim, and Fairview on the west; and Levan, west of the San Pitch Division.

Many areas on the Manti Division are visually sensitive because of the significant visual variety which is viewed by large numbers of recreation oriented visitors. These are areas where certain management activities would be highly visible and could cause a high degree of man-made visual contrast. Developed and dispersed recreation environments in Huntington Canyon, Joe's Valley (including Straight Canyon), Ferron Reservoir, Skyline Drive, Forest border slopes and escarpments are in this category.

The Moab Ranger District scenic attractions include mountain peaks and passes, forested lands and canyons. Spectacular viewing of the surrounding desert is also available. The Moab District serves as a scenic backdrop to Arches and Canyonlands National Parks, the town of Moab, and to travelers along connecting highway systems.

Visually sensitive areas on the Moab Ranger District include the peaks, views from the LaSal Loop Road, Warner, Oowah, and Buckeye Reservoirs, and views from other major recreation areas on and off the Forest.

The Monticello Ranger District's timbered slopes of the Abajo Mountains provide a welcome middleground and background contrast to the sand and heat of the nearby desert. This view is available to Monticello and Blanding communities, to travelers along roads and highways throughout the area, and to visitors at the National Parks, monuments, and recreation areas in the Four Corners Region. Pictographs, petroglyphs, and stone dwellings are evidence of past civilizations and are interesting scenic attractions.

Visually sensitive areas on the Monticello Ranger District include areas viewed from Elk Ridge Road, Chippean Rocks, Federal and State highways, Monticello and Blanding communities, Hammond, Arch, Peavine, Dark and Woodenshoe Canyons, and National and State Parks.

Wildlife such as elk, deer, small mammals and birds are often seen throughout the entire Forest and add to the viewing experience.

SCENIC QUALITY

Scenic quality is divided into three major classes: Class "A", unique, distinctive, or outstanding landscape variety; Class "B", prevalent, usual, or widespread variety; Class "C", little or no visual variety. Table II-8 displays scenic quality for the San Pitch, Manti, Moab, and Monticello land areas.

TABLE II-8

FOREST SCENIC QUALITY (ACRES)

<u>Land Area</u>	<u>Class A</u>	<u>Class B</u>	<u>Class C</u>
San Pitch Division	2,453	73,707	- 0 -
Manti Division	147,861	605,863	40,448
Moab District	39,516	120,650	14,492
Monticello District	<u>116,134</u>	<u>207,856</u>	<u>45,141</u>
Total	305,964	1,008,076	100,081

VISUAL QUALITY

Visual quality is measured in five levels of excellence based on physical (scenic quality) and sociological (user's concern) characteristics of an area. It allows for an acceptable degree of alteration of the characteristic landscape. The levels include: preservation, retention, partial retention, modification, and maximum modification. Table II-9 displays Forest visual quality levels of the existing visual condition based on the 1980 planning inventory.

TABLE II-9

FOREST VISUAL QUALITY (ACRES)

<u>Land Area</u>	<u>Existing Condition (1980)</u>				
	<u>Preservation</u>	<u>Retention</u>	<u>Partial Retention</u>	<u>Modification</u>	<u>Maximum Modification</u>
San Pitch Division	- 0 -	2,717	40,583	32,860	- 0 -
Manti Division	- 0 -	133,679	408,391	249,743	2,539
Moab District	- 0 -	23,429	82,666	57,966	10,597
Monticello District	<u>45,529</u>	<u>69,523</u>	<u>136,199</u>	<u>111,143</u>	<u>6,736</u>
Total	45,529	229,348	667,839	451,712	19,692

The characteristic visual landscape is composed of interactions of existing vegetation, water, and landform on the line, form, color, and texture of the viewed scene. Since a large proportion of the Forest's vegetation is in a mature to over-mature condition, the characteristic landscape should change as the vegetation changes. Vegetation treatments could influence this change by regenerating vegetation to blend with or improve the existing landscape. Changes to the characteristic landscape through natural successional processes such as wildfire, windthrow, or insect attack, could often be very large, contrasting, and could temporarily degrade the visual quality.

Many Forest users place high importance on visual quality. Maintenance of the visual resource should increase in importance as recreation use continues to grow.

Wilderness

Prior to the Colorado Wilderness Act of 1982 and the Utah Wilderness Act of 1984, the Forest planning process had developed an inventory of lands that were essentially unroaded and undeveloped. These met the minimum definition of wilderness, and qualified for wilderness evaluation per NFMA Regulation 219.17. The inventory contained 40 roadless areas, totalling 600,170 acres Forest-wide. This inventory and a description of each area was filed with the Forest's planning records.

The Utah Wilderness Act designated 706,736 acres State-wide, including the 45,000 acre Dark Canyon Wilderness on this Forest. Adjacent public lands administered by the Bureau of Land Management and National Recreation Area lands are being considered for wilderness and could add to the size and diversity of Dark Canyon Wilderness. The Colorado Wilderness Act did not designate any Manti-LaSal National Forest System lands as wilderness. Both laws released other National Forest System lands to other multiple use management until the next planning cycle. It is estimated that Dark Canyon Wilderness would meet the anticipated demand for wilderness in Utah during the first planning period. At the end of this period, and during Forest Plan revision, the need for additional wilderness could again be evaluated. The total acres that are estimated to be available at that time is discussed in Chapter IV.

Dark Canyon represents the first major Colorado Plateau Canyon terrain to be added to the National Forest Wilderness System. This area is characterized by deep sandstone canyons with vertical walls ranging from a few hundred to thousands of feet in height, interspersed with pinyon-juniper benchland. It contains arches, springs, seeps and hanging gardens. Life zones range from ponderosa pine and aspen-covered high country to desert vegetation in the bottom of Dark Canyon at the National Forest boundary. High red rock canyons dwarf visitors with terraced castle-like walls towering 3,000 feet above the canyon floors. Wildlife species are diverse and include mule deer, some cougar and possibly desert bighorn sheep. The area also ranks high in archeological and scenic values. The Dark Canyon Wilderness current use and demand use are displayed in Table II-7 under the primitive ROS class.

Wildlife and Fish

The Manti-LaSal National Forest ranks first of the six National Forests in the State of Utah in projected potential to produce big game. According to the Intermountain Region's Wildlife and Fish Assessment data base, the Utah Division of Wildlife Resources (UDWR), in 1990, projects the Forest producing 28 percent of the elk in the State, 21 percent of the mule deer, 11 percent of the moose, 30 percent of the mountain goat, and 24 percent of the bighorn sheep. Table II-10 shows UDWR population estimates and goals for certain big-game species. How close UDWR's figures

are to actual populations is unknown. Presently, one-third of the elk and one-sixth of the mule deer harvested in the State are taken on the Forest. Additional hunting opportunities are provided by black bear, cougar, turkey, blue, sage and ruffed grouse, chukar, band tail pigeon, snowshoe hare, and cottontail rabbits.

There are 680 miles of streams on the Forest. About 167 miles have been severely damaged as a result of landslide and flood events of 1983 and 1984, leaving 513 miles currently fishable. There are 1,765 acres of lakes and reservoirs on the Forest.

TABLE II-10

UDWR POPULATION EXISTING AND DESIRED GOALS

	<u>1980 Population Estimate</u>	<u>1990 Desired Goal*</u>
Elk	4,390	6,600
Mule Deer	32,150	83,630**
Moose	50	200
Mountain Goat	0	200
Bighorn Sheep	55	170

*Obtained from the Intermountain Region Wildlife and Fish Assessment Data Base for the 1980 Regional Guide, August, 1981, and reflects UDWR goals without multiple use considerations or interaction between big-game species.

**Since these goals were established, the Interagency Committee has agreed to complete Interagency Herd Unit Plans which will establish individual herd unit population objectives. How close the herd unit population objectives will come to the UDWR desired goals is unknown.

FOREST SPECIES

Diversity in topography, vegetation, and climate on the Forest provides habitats for 368 vertebrate species of mammals, birds, reptiles, amphibians, and fish. General groupings of the species and their game status are shown in Table II-11. A complete species list and summary of habitat relationships are included in the Forest planning records.

TABLE II-11

NUMBER OF VERTEBRATE SPECIES
(Vertebrate Species of Southern Utah, Pub. No. 78-16 - UDWR)

	<u>Total Species</u>	<u>Game Species</u>
Mammals	94	19
Birds	216	9
Reptiles	29	0
Amphibians	8	0
Fishes	21	4
Total	<u>368</u>	<u>32</u>

Estimated 1980 populations of the primary game species are indicated in Table II-12. Population projections for small game and non-game species have not been made Forest-wide.

TABLE II-12

ESTIMATED 1980 POPULATIONS OF PRIMARY GAME SPECIES

Species	Population
Black Bear	375
Elk	4,390
Mountain Lion	300
Moose	50
Mule Deer	32,150
Turkey	100

MANAGEMENT INDICATOR SPECIES

Management Indicator Species (MIS) are a select group of species which can indicate change in habitat resulting from activities on the Forest.

Criteria used in selecting MIS include:

- Threatened, endangered, and sensitive species.
- Special habitat indicators.
- Economically or socially important species.
- Ecological indicators.

These criteria and the MIS concept are discussed in the Intermountain Region's Wildlife and Fish Assessment Data Base, August, 1981, pp. 1-5. Table II-13 lists the selected MIS and an index of habitat capability, based on the capability in 1980 as an index of 100 for each species.

TABLE II-13

INDEX OF HABITAT CAPABILITY FOR FOREST MIS

Indicator Species	Current (1980) Capability	Minimum Viable	Maximum Potential
Elk	100	48	310
Mule Deer	100	62	215
Macroinvertebrates	100	*	128
Blue Grouse	100	*	200
Golden Eagle	100	*	100
Abert Squirrel	100	80	350

*Data to determine minimum viable population is not available.

ROCKY MOUNTAIN ELK

Elk is an economically important species which occurs throughout the Forest and is hunted on four Districts. Hunting demand is high, increasing, and expected to continue increasing.

Elk use most Forest habitat types during different periods of the year. The limiting habitat factor is winter range on or adjacent to the Manti and San Pitch Divisions, and summer range on and off the LaSal Division. Calving areas are important, but not limiting on all divisions. Elk are sensitive to activities occurring on their ranges and monitoring of projects is necessary to show the effects of land uses.

Management trade-offs may necessarily occur between elk and mule deer which could be reflected in population changes of both species.

The minimum viable population (MVP) of 2,125 is a threshold level below which the species cannot exist over time, within its present range. Existing population, 4,390, is the number on the Forest in 1980. The potential population, assuming lands on and off the Forest can provide winter habitat is 13,650, the maximum number National Forest System lands are capable of supporting using only soil and water protection limitations. The UDW's desired population of 6,600 is the goal the State would like to see reached by 1990. The population trend is increasing.

MULE DEER

Mule deer is an economically important species occurring and hunted throughout the Forest. Hunting demand has been high, increasing, and is expected to continue increasing.

Mule deer are found in most Forest vegetation types. They are quite dependent on lower and mid-successional stages of shrub and timber types, and activities occurring in these areas can significantly affect mule deer populations. Monitoring this species will show the effects of Forest management.

Mule deer populations are limited by winter range on and adjacent to the Manti and San Pitch Divisions. A large percent of the winter range is in private holdings off Forest. Use of this habitat could be eliminated as a result of private land uses at some point in the future. Thus, the management of key winter range on the Forest becomes very important.

On the LaSal Division, summer range is considered limiting and the majority is on National Forest System land. Forest management practices on this Division will often be reflected in mule deer habitat and population changes. Some off-Forest activities will impact mule deer also.

The population estimates at different levels are as follows:

- a. Minimum viable population is 19,820;
- b. Existing (1980) population is 32,150;
- c. Potential population with multiple use considerations is 49,938; and
- d. State DWR desired population without multiple use considerations is 83,630.

The population trend is increasing.

ABERT SQUIRREL

The Abert squirrel is a Utah State high interest species found only on the Monticello District in Utah. Optimum Abert squirrel habitat is characterized by ponderosa pine stands with even-aged clumps of 12-19 inches D.B.H. and 45-75 foot height, with interlocking crowns and a ground cover of forbs, grasses, and shrubs. Several studies have shown Abert squirrels to have summer territories averaging 18-24 acres and winter territories averaging five acres.

By selecting Abert squirrel as a MIS, the species will be monitored to determine how timber management activities manipulate its habitat (mature ponderosa pine) and population. The basic habitat area of the squirrel will remain constant although population densities may change in the various areas with time or as a result of timber management.

Existing, potential, and UDW desired population estimates are not available for Abert squirrels. Its present habitat of 79,925 acres of ponderosa pine is believed to be needed to support a minimum viable population. Currently, 2,200 acres of the total ponderosa pine acreage is unavailable for timber management activities due to steep slopes and rough terrain. These acres are generally mature ponderosa pine types and constitute poor to optimum Abert squirrel habitat. The remaining 77,725 acres of ponderosa pine available for timber management activities constitute from poor to optimum Abert squirrel habitat. Maintenance of healthy ponderosa pine timber stands should sustain the Abert squirrel within its present range. Abert squirrel population trend is stable.

BLUE GROUSE

Blue grouse, hunted on all Districts, is closely tied to several vegetative types occurring above 6,500 feet in elevation on the Forest. Breeding males require areas of escape cover in open timber stands adjacent to open sagebrush/grass/forb habitat types. The edges are most heavily used. Males display in the open areas. Females require nesting cover on the ground, usually sagebrush or other dense brush. Females usually nest in the territory of the male they mate with. Brooding cover, tall grasses and tall forbs (12-15 inches high), is usually found along the edge between timber stands and sagebrush flats. Blue grouse move to higher elevations in the winter and require mature conifer stands. Douglas-fir is preferred.

Management activities can impact habitat and result in population changes. Logging and roading mature conifer stands may reduce wintering habitat. Ecotones between timber and shrub/grass habitats may be altered by logging and/or range vegetative manipulations. Pesticide spraying in shrub/grass habitats reduces the prey base (insects) in brooding areas. Livestock grazing reduces brood cover in many areas.

The DWR annually collects summer inventory and harvest data which should indicate how management affects blue grouse.

On the Manti-LaSal National Forest, there are approximately 244,000 acres of marginal timber lands. Of this total, it is estimated that 100,000 acres would be required to maintain the blue grouse within its present range. Winter feeding areas are considered to be the limiting factor for blue grouse production.

Though population estimates of blue grouse are not available, according to the Utah State Division of Wildlife Resources, the population trend is stable.

GOLDEN EAGLE

The golden eagle is a State and Federal high interest species found on all Districts. They use most vegetative types found throughout the Forest. Their nest sites are generally localized in escarpment areas, and are usually found in undisturbed areas. During nesting and brooding seasons (mid-February to mid-July) activities in active nest site areas may impact golden eagle populations. Monitoring this MIS should determine how these activities affect golden eagles.

Existing, potential, and UDW desired population estimates of golden eagles are not available. The optimum number of golden eagles on the Manti-LaSal National Forest was estimated using the fact that a breeding pair requires a territory up to 30 square miles in size. Dividing the total Forest area (1,334,491 acres) into 30 square mile units would provide habitat for a maximum of 69 breeding pairs.

MACROINVERTEBRATES (Aquatic Insects)

Macroinvertebrates are ecological indicator species in aquatic habitats and the ability of that habitat to support fisheries. Habitat requirements for aquatic macroinvertebrates vary with species. Habitat requirements for any one species are very specific.

Aquatic habitat on the Forest consists of 680 miles of stream fisheries and 1,765 acres of lakes and reservoirs. Macroinvertebrates are found in these areas. Tunnels and canals, which carry water, may also provide habitat for macroinvertebrates. These habitats can be monitored for macroinvertebrates on a priority basis as needed to determine the specific effects of any one project or activity, as well as the effects of general Forest land management, on the aquatic resources. The number and variety of macroinvertebrates found express the quality and quantity of the aquatic habitat. Changes in aquatic habitats, resulting from activities in the terrestrial habitat, are rapidly seen through changes in the species composition and biomass of macroinvertebrates.

Any serious concerns about habitat conditions beyond MVP levels should be addressed under well defined procedures outlined in the R-4 General Aquatic Wildlife System (GAWS) and the publication "Aquatic Ecosystem Inventory - Macroinvertebrate Analysis" published by USFS, Intermountain Region, October, 1979. The following list of macroinvertebrate species is considered minimal to accomplish any meaningful assessment of the aquatic ecosystem, and may be utilized essentially as one MIS:

Epeorus Species - Mayfly - Requires good water quality and good instream habitat. Must have a resident population.

Zapada Species - Stonefly - Depends upon allochthonous leaf litter for nutrients. Relative numbers generally indicate riparian habitat quality and quantity. Best when sampled in fall.

Ephemerella doddsi - Mayfly - Requires good water quality and good instream habitat. Relative numbers can indicate habitat quality.

Ephemerella inermis - Mayfly - Moderately tolerant to sedimentation. Good red-flag species when their numbers increase.

Chironomidae species - Dipteran - Highly tolerant to multiple forms of pollution. Particularly tolerant to sedimentation. Often dominate the community when pollution is severe.

CURRENT AND PROJECTED DEMAND FOR FISH AND WILDLIFE

Table II-14 shows the 1980 and projected demand for wildlife and fish through the planning period.

Hunting demand for elk has increased since open bull seasons were implemented (1967 for the Manti Division, 1970 for the LaSal Mountains) and this trend is expected to continue. Elk hunting pressure on the Forest has averaged about 28 percent of the State's total over the last 10 years.

Stream habitat for fisheries is estimated to be about 25-30 percent of its potential. This is due to historic land abuse and recent mud slides and associated flooding. Improvement of stream habitat and construction and/or reconstruction of flat water fisheries will aid in meeting the projected demand for fishing.

Mule deer numbers have been less than the carrying capacity of their key habitat for much of the last decade. These numbers are gradually increasing. The increase of numbers will aid in meeting the expected demand for deer hunting.

TABLE II-14

PROJECTED DEMAND FOR WILDLIFE AND FISH WILDLIFE AND FISH USER DAYS (WFUD)

<u>Year</u>	<u>Mule Deer</u> <u>WFUD</u>	<u>Elk</u> <u>WFUD</u>	<u>Fish</u> <u>WFUD</u>	<u>Total</u> <u>WFUD</u>
1980	34,051	12,241	52,198	98,490
1990	49,664	37,753	98,569	185,986
2000	56,423	53,249	123,663	233,335
2010	63,180	68,742	148,751	296,169
2020	69,939	84,238	173,846	328,023
2030	76,695	99,732	198,934	375,361

ENDANGERED, THREATENED, AND SENSITIVE SPECIES

The following definitions are applicable to these species:

Endangered Species - Any species listed in the Federal Register which is in danger of extinction throughout all or a significant portion of its range.

Threatened Species - Any species listed in the Federal Register which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

Sensitive Species - Any species which (1) has appeared in the Federal Register as proposed for classification as T&E and/or is presently under consideration for official listing, or (2) is recognized by the Regional Forester to need special management in order to prevent them from being placed on a Federal or State list.

There are extensive guidelines for endangered, threatened and sensitive species including the Endangered Species Act of 1973 (PL-93-205); Forest Service National Policy; the Manti-LaSal National Forest Endangered, Threatened and Sensitive Species Management Plan; and the Regional Forester's Endangered, Threatened and Sensitive Animal and Plant list. Special attention is necessary for the environmental needs and habitat management for those species listed as endangered, threatened, and sensitive, which are dependent upon the Forest.

Table II-15 lists the endangered, threatened, and sensitive plants, mammals, birds, amphibians, and reptiles found on the Forest.

The Bald Eagle is a winter migrant and is found in Joe's Valley and Castle Valley Ridge. Roosting areas have been located in Four-Mile Canyon and north of Indianola. Except for the roosting areas, no National Forest System lands on the Manti-LaSal National Forest are considered to be critical or essential for Bald Eagle. Winter surveys indicate approximately four eagles use the Joe's Valley area and 12 use the Castle Valley Ridge area each winter. The roosting areas have not yet been surveyed.

During the spring of 1984, a breeding pair of peregrine falcons was located on the Monticello District. Surveys need to be completed to determine the habitat and extent of use of this pair or others on National Forest System lands.

River otter have recently (within the last 15 years) been located on National Forest System lands in the vicinity of Potters Pond. Additional surveys are needed to determine the viability and extent of the population and its critical habitat requirements.

Little information is available on the other animal species listed as sensitive. As information becomes available, appropriate actions will be taken to maintain and/or increase the number with the goal of taking the animals off the list.

There is one plant species, Echinocereus triglochidiatus var. inermis, on the Forest which is officially listed as endangered. Thirteen other species are considered as sensitive.

Astragalus montii has been proposed for listing as a threatened species by the USDI Fish and Wildlife Service.

All the endangered, threatened, and sensitive plant species are protected, studied, and maintained under the guidelines set forth in the Endangered Species Act of 1973, the Forest Service Manual, National Policy and Guidelines for Sensitive Species, and the Manti-LaSal National Forest's Endangered, Threatened, and Sensitive Species Management Plan.

With the exception of the Bald Eagle roosts (mentioned above) no population trends or critical or essential habitat has been established or determined for any of the sensitive or endangered species located on the Forest. Studies have been established and plans initiated to determine species distribution and essential habitat on the Forest.

Habitat for most of the sensitive and endangered plant species is located within livestock grazing allotments. As allotment management plans are developed, protection of these species is made part of the plan. Protective measures may include grazing of the habitat area only after the plant has completed its annual life cycle, grazing at a time when the plant is least sensitive, fencing the habitat areas, and elimination or reduction of grazing.

TABLE II-15

THREATENED, ENDANGERED, AND SENSITIVE SPECIES
FOUND ON THE FOREST

<u>Species</u>	<u>Status</u>
<u>Plants</u>	
Astragalus desereticus (Deseret milkvetch)	Sensitive
Astragalus iselyi (Isley milkvetch)	Sensitive
Astragalus montii (Heliotrope milkvetch)	Sensitive*
Carex scirpoidea var. curatorum (None)	Sensitive
Cryptantha creutzfeldtii (Creutzfeld catseye)	Sensitive
Echinocereus triglochidiatus inermis (Spineless hedgehog cactus)	Endangered
Erigeron mancus (LaSal daisy)	Sensitive
Festuca dasyclada (Sedge fescue)	Sensitive
Hedysarum occidentale var. canone (Canyon sweetvetch)	Sensitive
Hymenoxys depressa (Low hymenoxys)	Sensitive
Hymenoxys helenioides (Helenium hymenoxys)	Sensitive
Penstemon tidestromii (Tidestrom beardtongue)	Sensitive
Senecio dimorphyllus var. intermedius (Intermediate groundsel)	Sensitive
Silene petersonii (Plateau catchfly)	Sensitive
<u>Mammals</u>	
Sciurus aberti (Abert squirrel)	Sensitive
Lutra canadensis (River otter)	Sensitive
Ochotona princeps-moorei (Moores pika)	Sensitive
Euderma maculatum (Spotted bat)	Sensitive
<u>Birds</u>	
Haliaeetus leucocephalus (Bald Eagle)	Endangered
Falco peregrinus (Peregrine falcon)	Endangered
Aquila chrysaetos (Golden Eagle)	Sensitive
Accipiter cooperii (Cooper hawk)	Sensitive
Asyndesmus lewis (Lewis woodpecker)	Sensitive
Coccyzus americanus (Yellowbilled cuckoo)	Sensitive
<u>Amphibians</u>	
Hyla arenicolor (Canyon tree frog)	Sensitive
<u>Reptiles</u>	
Diadophis punctatus regalis (Regal ringneck snake)	Sensitive
Xantusia vigilis utahensis (Utah night lizard)	Sensitive
Ophedrys vernalis blanchardi (Western smooth green snake)	Sensitive
Lampropeltis pyromelana var. infralabialis (Utah mountain king snake)	Sensitive
Lampropeltis triangulum var. taylori (Utah milk snake)	Sensitive
<u>Summary</u>	
Federally Listed (Endangered)	3
Sensitive	27

* Proposed for listing by the USF&WS.

HABITAT DIVERSITY

Forest wildlife species depend on a variety of vegetation and different growth stages for habitat. Certain species such as goshawks depend on the late succession or mature forest stages for nesting. Mule deer and elk need early structural stages (seral) for feeding and mid and late stages for protective cover from predators and shelter from the elements. Few of the species are exclusively dependent on any one structural stage. The Forest condition that best provides wildlife diversity is one that contains structural stages in a well distributed mosaic of vegetation types and stages.

Range

Table II-16 is a summary of the range resource on the Forest.

TABLE II-16

RANGE RESOURCE SUMMARY RANGE CONDITION, TREND, AND VEGETATIVE TYPES

	Acres, Range Suitable for Grazing and Browsing	Acres, Range Suitable for Livestock Grazing
Acres of Range	1,212,846	651,481
Range Forage Condition*		
Acres Good	122,278	78,399
Fair	655,853	449,963
Poor	210,876	123,119
Unclassified (7 & 7T Types)	223,839	0
Total	1,212,846	651,481
Ecological Trends*		
Acres Up Trend	37,411	32,686
Not Apparent	841,317	527,417
Down Trend	110,279	91,378
Total	989,007	651,481
Vegetative Types		
1. Grasslands	176,627	162,558
2D. Dry Meadow	4,441	4,441
2W. Wet Meadow	887	887
3. Perennial Forb	26,035	22,553
4. Sagebrush	117,550	93,811
5. Browse-Shrub	264,114	129,186
6. Coniferous Forest	204,375	81,836
9. Pinyon-Juniper	252,643	14,778
10. Aspen	158,893	134,585
20. Reseeded Lands	7,281	6,846
Total	1,212,846	651,481

*Condition and trend figures are based on formal inventory procedures, some of which are over 20 years old. A more current inventory would reflect slightly more acres in the higher condition classes.

There are 144 designated grazing allotments on the Forest comprised of 47 cattle and 97 sheep allotments. At present, most of the allotments are being grazed at or near their estimated grazing capacities, although some allotments are over obligated.

The Forest has permits for 20,730 cattle and 84,913 head of sheep. The 1980 permitted AIM obligation for the Forest was 175,334. This is 23,648 AIM's over the 151,686 actually being grazed. The difference between permitted and actual use is shown on non-use agreements for: (1) reduced stocking for range protection, (2) reduced stocking while range development takes place, and (3) some non-use for personal convenience of the permittees (Table II-17). While the existing permit obligation is 20 percent greater than the carrying capacity Forest-wide, the actual use being made of the range is within six percent of the carrying capacity. It varies from allotment to allotment, but the actual use is getting closer to the grazing capacity. This is accomplished by adjusting numbers and season of use, and by installing improvements and grazing management systems that increases capacity.

In 1980, there were 482 valid livestock permits issued on the Forest. Of this, 329 were cattle, and 153 were sheep permits (Table II-18). Forty-seven percent of the cattle permits were for less than 30 animals and 82 percent of the sheep permits were for less than 1,000 head. This large number of permittees, with relatively small numbers of animals, creates a heavy impact on administrating the range program on the Forest. There are many changes in permits with an average of about 75 permit waivers and modifications each year.

TABLE II-17

PRESENT AND POTENTIAL RANGE USE

	Present Obligation AIM's*	Actually Grazed AIM's*	Present Capacity AIM's**	Estimated Potential AIM's***
Total AIM's	175,334	151,686	142,249	162,132

* Data From 1980 Grazing Report

** Based on Best Estimate at This Time (1984)

*** Estimated Potential Capacity Based on Current Direction

The range carrying capacity must be balanced so the long-term soil productivity is not impaired. Range carrying capacities can change based on the kind and amount of available moisture, the quality and effectiveness of the allotment grazing system, the level of improvement and maintenance work done, the influence of many natural factors such as catastrophic events (landslides, wildfires), cycle of changes in rodents, pests, diseases, etc., and the impacts from other resource uses and activities on an area.

To keep use levels in balance with the range, additional improvement work is needed on many of the allotments on the Forest. Some allotments contain poor condition range, lack available water, or need both structural and non-structural improvements to improve and maintain their condition. Some allotments are over-obligated in terms of livestock use to available forage supply. Without range improvement, the obligation will eventually be reduced. Likewise, when improvements in range condition and carrying capacity occur, increase in livestock stocking can be considered.

TABLE II-18

NUMBER OF LIVESTOCK PERMITTEES
ON THE MANTI-LASAL NATIONAL FOREST

Permit Size	Manti Division No. of Permits	LaSal Division No. of Permits	Total	Percent
Cattle 1-30	140	13	153	47
31-50	68	1	69	21
51-100	50	4	54	16
101-300	29	15	44	13
301+	1	8	9	3
Subtotal	288	41	329	100
Sheep 1-50	7		7	5
51-100	10		10	6
101-300	30		30	20
301-1,000	78		78	51
1,000+	28		28	18
Subtotal	153		153	100
Total	441	41	482	—

The inventory (Table II-16) shows sixteen percent of the suitable livestock range on the Forest is in poor condition, 69 percent is in fair condition, and 12 percent is in good condition. Range trend on suitable range on the Forest shows that five percent of the total suitable range is in a up-trend, 80 percent is in a stable condition, and 14 percent is in a down-trend. Range condition and trend need to be improved. Some of these figures are 20 years old. A more current inventory would show a somewhat better range condition.

The greatest potential for improving range condition and trend is on the poor condition range sites in the high elevation grass-forb, aspen, mountain brush, sagebrush, and piñon-juniper vegetative types. Approximately 123,000 acres of poor condition rangelands suitable for livestock grazing have been identified on the Forest. Most of these lands will need either treatment or less grazing pressure to improve their condition and trend.

Plant composition has changed in many of the plant and habitat types on the Forest. Many of the original, more desirable species are missing. Lower elevation sites in the sagebrush-grass and the grass-forb types on the high plateaus were heavily grazed near the turn of the century with resultant much soil loss. These lands have lost much of their productivity and cannot support the quality and quantity of vegetation previously found there. The species found in many of these types today are classed as secondary or invader species, providing less ground cover and available forage. These poor range sites could take a long time to recover and reach their potential because of the slow rate of soil development.

Many range revegetation projects have been completed on the Forest to improve the vegetative and soil conditions. There is a potential for many more projects on the Forest. The current range management direction on the Forest is to develop range allotment plans for all grazing allotments by 1988, and to include in these plans the projects needed to develop and improve the range condition. These projects will benefit both livestock and wildlife. As of 1984, 91 of the 144 grazing allotments have plans written and approved.

Many local ranchers are dependent upon the forage produced on the Forest for an important part of their operation. Grazing on National Forest System lands aids in maintaining a stronger tax base and provides support to the local economy and communities.

The conflicts between livestock and big-game use on big-game winter range are minor at present. Conflicts may increase in the future as private lands near the Forest are sold for development. This will reduce the available big-game winter range areas off Forest and increase the use on National Forest System lands.

Conflicts between livestock use and exploration and development of the mineral industry, currently minimal, have a potential to increase with increased mineral activities. Rangelands will be either lost or impacted. Without adequate mitigations, some adjustment in livestock numbers may be needed. It may also be necessary to make changes in management systems and plans to adjust to the effects of these developments.

Timber

LAND CLASSIFICATION

Some 368,100 acres are classified as tentatively suited land for timber production on the Manti-LaSal National Forest (Table II-19). This classification was determined in accord with regulations in 36 CFR 219.14. The suited land acreage for timber production is based on total National Forest System lands included in the 1964 timber inventory. These lands were evaluated on slopes, access, and land stability to determine lands tentatively suitable for timber production. Tentatively suited lands include lands that could be harvested using available logging systems without causing irreversible or irretrievable environmental damage. Owing to demand and limitations on logging equipment locally, a second evaluation was made to show the lands suitable for logging with methods commonly used on the Forest (see Table II-20). While 92 percent of the timberland is suitable for timber management, currently only 34 percent of the timberland is available for harvest.

TABLE II-19

TIMBERLAND CLASSIFICATION

	<u>M Acres</u>	<u>Percent</u>
I. Non-Forest Land	644.7	48.3
II. Forest Land	(689.8)	(51.7)
A. Forest Land not Suited for Timber Production	(321.7)	(24.1)
1. Land not capable of producing 20 cubic feet/acre/year.	252.6	18.9
2. Land withdrawn from timber production.	9.4	.7
3. Land not physically suited (irreversible damage likely to occur).	22.6	1.7
4. Land with inadequate current information.	37.1	2.8
B. Tentatively Suited Forest Land	(368.1)	(27.6)
1. Land not suited for timber production due to high logging costs.	235.4	17.7
2. Net land suited for timber production.	<u>132.7</u>	<u>9.9</u>
III. Total Land	1,334.5	100.0

TABLE II-20

SUITABLE TIMBERLAND CLASSIFICATION BY TIMBER TYPE

Timber Type	M Acres			MBF			
	Total	Tent.	Curr.	Current Allowable Sale Quantity		Optimum LTSY Projected	
				Tent.	Curr.	Tent.	Curr.
PP	105.6	101.9	51.4	3,566	1,799	22,418	11,308
ES	74.1	66.4	24.7	6,640	2,470	13,280	4,940
AF	36.8	33.1	3.4	1,754	180	6,620	680
DF	31.4	28.3	12.8	1,358	614	5,660	2,560
AS	154.6	138.2	44.6	6,081	1,962	20,730	6,690
Total	402.5	368.1	136.9	19,399	7,025	68,708	26,178

Tent. = Tentatively

Curr. = Currently

REGULATION OF CUT

The Forest is now overbalanced in favor of old-growth sawtimber. The percentage of total stocking by size-class follows:

<u>Size Class</u>	<u>Acres</u>	<u>Percent</u>
Mature Sawtimber	95,500	72
Immature Sawtimber and Poles	33,200	25
Seedlings-Saplings and Nonstocked	<u>4,000</u>	3
TOTAL	132,700	

The current allowable sale quantity (ASQ) and projected optimum long-term sustained yield are shown in Table II-20 by species. The ASQ is calculated using the volume production per acre by species developed for the 1966 Forest Timber Management Plans. The LTSY is based on optimizing management for timber growth for each species.

A regulated forest would have approximately 40-50 percent of its commercial forest land in the sawtimber class, 25-35 percent in the pole class, and 25-30 percent in the seedling-sapling class.

EXISTING SITUATION

Of the Forest's 105,600 acres of ponderosa pine, about 25,500 acres are rated as having high to medium susceptibility to attack by mountain pine beetle. About 80 percent of the Engelmann spruce type was affected to some degree by the bark beetle attack in the early 1960's. The remaining 20 percent is rated as having medium to high susceptibility. Root rots are continuing to cause quite

high mortality rates in the fir types. About 33 percent of the ponderosa pine type is infected with dwarf mistletoe. An infestation of spruce budworm was recently noted in the Engelmann spruce in the Huntington Canyon area.

The price of timber over the last 10 years has been very erratic. The current high interest rate has severely depressed the lumber market. Costs for road construction, logging, and milling have caused most timber sales to be below cost sales.

Most timber sales are on relatively flat slopes with a very few reaching or exceeding 40 percent slopes. Tractor logging is the only yarding method currently used.

Cutting practices have changed over the years. Until about 1960, approximately 25 percent of the spruce fir areas were harvested by clearcuts. Currently, all merchantable timber is salvaged in insect infected or fire killed trees. Growing public sentiment against clearcutting prompted the use of other harvest methods in healthy spruce-fir stands. Ponderosa pine has always been harvested by individual or group selection or shelterwood methods. Clearcutting is still the harvest method for aspen as it is necessary to cut an entire clone at one time to achieve successful sprouting and regeneration of the species.

The present harvest is:

- 2 MMBF Spruce Fir Type
- 2 MMBF Ponderosa Pine Type
- 4.3 MMBF Roundwood Products and Fuelwood, All Species
- Minor Harvesting in the Aspen Type
- 8.3 MMBF (Total)

DEMAND ANALYSIS

Demand for sawtimber on the Manti-LaSal National Forest is assumed to be completely elastic. This infers that the quantity offered for sale does not affect stumpage prices and all timber offered for sale will be sold. Average annual production for the past 3 years has been 8.3 MMBF. This figure includes sawtimber, roundwood, and fuelwood.

Fuelwood is being managed under an interim fuelwood management plan until fuelwood management is incorporated as part of the Forest Plan. A charge system for fuelwood for personal use was implemented in 1982. Fees collected through this program are used to maintain the fuelwood management program.

In 1982, 8,500 cords of fuelwood were harvested. Consumption is predicted to increase approximately five percent annually through the planning period to as much as 44,500 cords per year by 2030.

Water

The Forest contributes water to three major rivers: (1) the Upper Colorado River, (2) the Sevier River, and (3) the Jordan River, tributary to the Great Salt Lake. Within these three major drainages, 19 separate watersheds have been identified on the Forest.

Current Use and Management - The Forest receives about 2,640,000 acre-feet of precipitation of which about 731,000 acre-feet is yielded as streamflow. The rest is lost to evapo-transpiration, and groundwater losses. Precipitation varies from 10 to nearly 35 inches per year. (Figures II-3

FIGURE II-3

AVERAGE MONTHLY PRECIPITATION

ORANGE OLSEN RANGER STATION

1969 — 1978

AVERAGE ANNUAL PRECIPITATION = 13.97 Inches

ELEVATION = 7,240 Feet

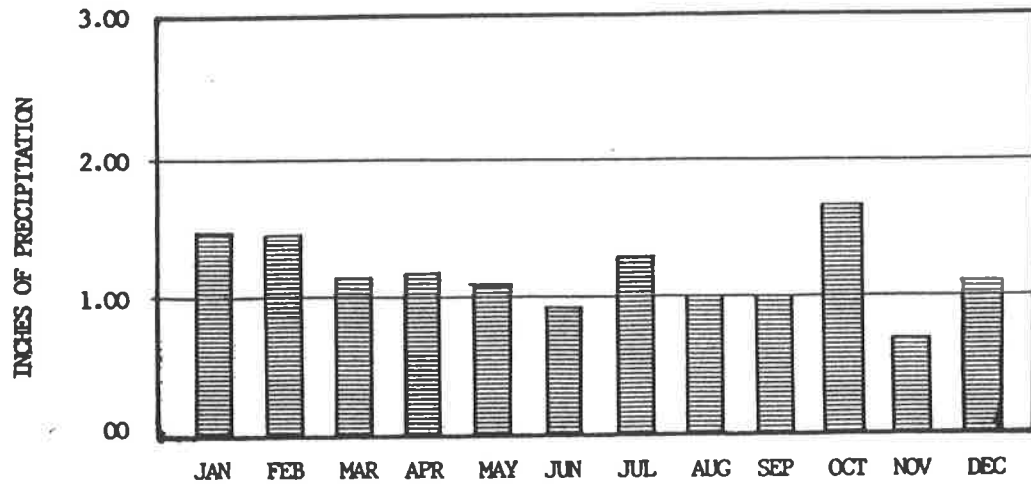


FIGURE II-4

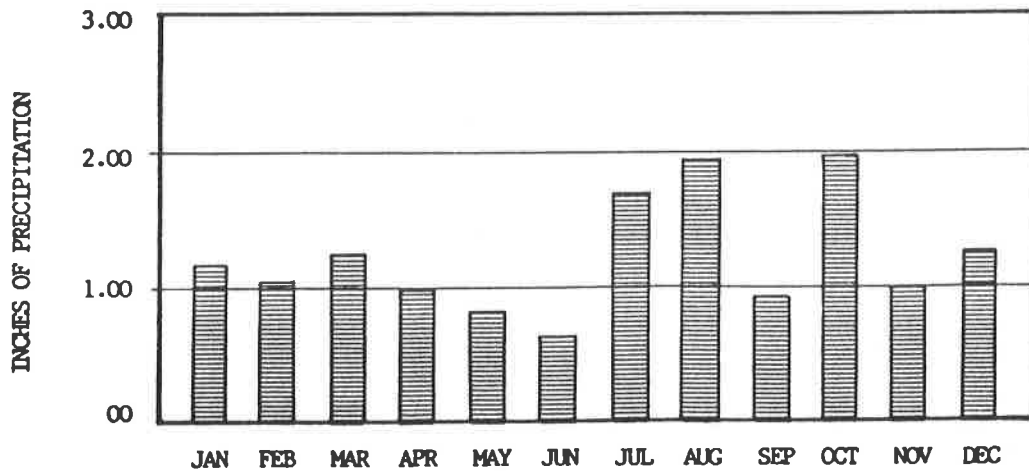
AVERAGE MONTHLY PRECIPITATION

MONTICELLO, UTAH

1906 — 1975

AVERAGE ANNUAL PRECIPITATION = 15.22 Inches

ELEVATION = 7,050 Feet



and II-4 show the distribution of precipitation through the year at Orange Olsen Guard Station and Monticello, Utah). Water yield throughout the Forest ranges from less than 1 to nearly 19 inches per year. Table II-21 lists the mean annual water yield by watershed. The bottom of the table summarizes the water yield into the major river basins. Thirty-two percent of the high runoff (12 inches or more) occurs on less than 15 percent of the Forest. Forty percent of the Forest produces little runoff (4 inches or less).

Streamflow follows a general pattern influenced by precipitation and topography. The streams rise in the spring as snowmelt progresses up the mountains. The high country includes extensive areas at relatively the same elevation which melts at the same time. Peak flows generally occur between mid-May and mid-June. The streams recede with only temporary increases from summer storms until the fall storms. The storms bring the streams up slightly, but then flows continue to recede as the precipitation turns to snow with little additions to streamflow. The flows continue to recede as groundwater supplies are diminished through the winter.

TABLE II-21

MEAN ANNUAL WATER YIELD BY WATERSHED

Watershed Name	Watershed Number	Mean Annual Water Yield (Acre-Feet)
Upper Spanish Fork	01	41,171
Price River	02	58,641
San Pitch River	03	151,681
Huntington Creek	04	76,309
Straight Canyon	05	69,666
Ferron Creek	06	56,980
Muddy Creek	07	37,284
Moab	08	41,099
Dolores	09	19,038
Indian Creek	10	29,246
Dark Canyon	11	46,807
San Juan	12	36,290
Montezuma	13	9,292
Salt Creek	14	9,188
Fountain Green	15	6,714
Chicken Creek	16	25,608
Upper Salina Creek	17	3,986
Paradox	18	10,866
Grand Gulch	19	1,132
Total		730,998
SUMMARY		
Great Basin	01, 03, 14, 15, 16, 17	238,348
Sevier River	03, 15, 16, 17	(187,989)
Jordan River	01, 14	(50,359)
Upper Colorado	02, 04, 05, 06, 07, 08	
	09, 10, 11, 12, 13, 18, 19	492,650
Total		730,998

Water flows off the Forest through an estimated 13,600 miles of channels. These channels include the first and second order headwater channels which are nearly all intermittent. About 2,500 miles of channel are third order and larger, with only a portion of these considered perennial. About 680 miles of stream channels are recognized as perennial streams and as fisheries.

An inventory of lakes and reservoirs is given in Table II-22. Most of these are used to store snowmelt and supply irrigation water. However, a few large reservoirs are used to store most of the runoff and provide a nearly constant release of water for industrial and municipal use.

Numerous water collection, storage, and distribution systems exist within the Forest boundaries. Some hydroelectric development has occurred and additional interest in water as a source of power has been expressed. Requests for future water developments will be processed according to State water law and the Forest Service special-use authorization process, and will protect water needed for National Forest purposes.

Water from the Forest supplies all or a portion of the water used by 23 local communities. Table II-23 provides some additional information about the communities and the municipal watersheds. About 39 percent of the Forest provides municipal water. Management is concerned about the health and safety of the people who drink waters from the Forest. These concerns include both the quality and quantity of the water supply.

Existing uses of water are being inventoried, quantified, and filed in accordance with State Law and in keeping with the State's program of stream adjudications. There are some legal questions which must be resolved, but the program of inventory and claims brings questions to the proper area for resolution. (See Tables II-24 and II-25).

Water yield changes are theoretically possible from snowpack manipulations, vegetative manipulations, and topographic changes such as contour furrowing and trenching. Generally, clearcut harvest of conifer or aspen tend to maintain or slightly enhance water production, but might also create land stability problems.

Three reports describe water quality on the Forest. A report for Straight Canyon by McLaughlin in 1973 shows that water is within State standards except occasionally coliform bacteria amounts are exceeded in select spots above Joes Valley Reservoir. A report by Kelly in 1980 shows that water on the Monticello District is within State standards except where natural occurring concentrations of copper occur in the Montezuma drainage. A third report by Kelly in 1983 summarizes data for 15 drainages throughout the Forest and shows that the water leaving the National Forest is generally within State standards.

Riparian areas on the Forest were identified on the basis of stream type. This stream type classification meets the requirements of Executive Order 11990 on wetlands. Presently, individual projects that occur in these riparian areas incorporate specific protection and management measures as reflected in Management Unit Requirement RPN in Chapter III of the Forest Plan.

The riparian and aquatic areas identified in the stream type classification process are the flood-prone areas of the Forest, covered in Executive Order 11988, Floodplain Management.

Demand Trends - The growing population and agricultural industries located on lands surrounding the Forest and, to some extent, the lower Colorado River, place heavy demands on available water supplies. Streams in the Forest are over-appropriated; that is, there are more water rights than water available to fulfill them.

TABLE II-22

LAKES AND RESERVOIRS INVENTORY

Lake Name	Section	Township	Range	Elevation	Surface Area	Depth Max.	Depth Flux
Joos Valley Reservoir	5 & 6	188	6E	6,988	1,170.5	160	0.0
Twin Lake	32	198	3E	7,198	9.1	38	8.2
Smiths Reservoir	7	118	5E	7,198	21.0	10	3.3
Manti Com-Yearns	13	188	3E	7,502	5.4	16	1.6
Buckeye Reservoir	2	48N	19W	7,598	65.0		11.5
Town Reservoir	20	198	3E	7,743	6.4	28	1.6
Hamburger Lake	28	148	2E	7,960	0.0		0.0
New Field Reservoir	20	198	3E	8,038	0.0		0.0
Patten Reservoir	22	188	3E	8,265	0.0		0.0
Lake Hill Reservoir	20	178	4E	8,378	3.7	10	1.6
Gooseberry Reservoir	7	138	6E	8,422	57.3	16	3.3
Spring Lake	21	338	22E	8,443	2.0	15	.7
Millers Flat Reservoir	3	158	6E	8,465	160.1	64	3.3
Monticello Lake	23	338	22E	8,618	3.9	20	1.6
Electric Lake	14	148	6E	8,618	476.0		9.8
Slide Lake	3	188	5E	8,665	0.0		0.0
Duck Lake	19	348	20E	8,684	12.1	4	4.0
Racetrack Pond	22	338	22E	8,738	2.0	4	3.3
Soup Bowl	32	178	5E	8,743	2.2	21	3.3
Boulger Reservoir	33	138	6E	8,746	6.2	13	1.6
Grassy Flat Reservoir	4	188	5E	8,770	9.1	6	3.3
Academy Mill Reservoir	4	188	5E	8,793	5.4	11	1.6
Coum Lake	33	268	24E	8,795	4.4	15	7.2
Marya Lake	14	188	5E	8,798	5.4	15	1.6
Cleveland Reservoir	27	148	6E	8,810	105.0		0.0
Beaver Dam Reservoir	30	138	6E	8,838	2.5	10	.7
Rolfson Reservoir	33	148	6E	8,841	49.9		6.6
New Canyon Reservoir	3	278	4E	8,845	0.0		0.0
Pates Hole Reservoir	5	188	5E	8,861	11.9	16	2.6
Julius Flat Reservoir	27	208	4E	8,870	32.4	36	3.3
Wiggly Spring Reservoir	7	208	6E	8,897	8.2	19	1.6
Lower Six Mile Pond	2	198	3E	8,920	0.0		0.0
MLA Camp Lake	21	138	6E	8,920	7.0		0.0
Grassy Lake	26	178	5E	8,936	11.1	19	13.1
Upper Six Mile Pond	2	198	3E	8,938	12.1		0.0
Potters Pond West No. 2	8	168	6E	8,957	8.2	11	1.6
Potters Pond East	8	168	6E	8,958	7.7	18	3.3
Fairview Lakes	36	138	5E	8,975	0.0		0.0
Huntington Reservoir	21	148	5E	9,012	137.9	28	27.9
WPA Pond No. 2	36	198	3E	9,220	0.0		0.0
Blue-Jewkes	23	178	5E	9,250	1.7	8	3.3
Deep Lake	36	198	3E	9,307	4.4	20	3.3
WPA Pond No. 1	36	198	3E	9,310	3.0		0.0
Duck Fork Reservoir	10	198	4E	9,311	46.9		0.0
Cove Lake	25	188	4E	9,348	4.2	8	1.6
Warner Lake	28	268	24E	9,348	4.9		4.9
Clarke	34	268	24E	9,358	2.0		1.6
Woods Lake	15	208	3E	9,409	7.7	15	1.6
Upper Bush Pond	24	198	4E	9,416	2.7	7	1.6
Lower Bush Pond	24	198	4E	9,416	4.4	8	1.6
Henry Reservoir	4	198	4E	9,433	12.8		0.0
Lower Horse Creek Pond	24	198	4E	9,448	3.0	10	.7
Ferron Reservoir	22	198	4E	9,472	57.1	30	3.3
Lower Harmonica Lake	13	198	4E	9,478	2.7	11	3.3
Upper Harmonica Lake	13	198	4E	9,478	4.4	4	1.6
Spinners Reservoir	2	198	4E	9,613	0.0		0.0
Willow Lake	29	198	5E	9,640	24.0		0.0
Loggers Fork Reservoir	10	188	4E	9,997	9.6	26	6.6
Henningson Reservoir	20	208	4E	10,012	0.0		0.0
Medicine Lake	35	278	24E	10,017	2.0	5	1.0
Blue Lake	7	278	25E	10,097	3.9	16	3.3
Snow Lake	15	188	4E	10,130	7.2	23	1.6
Emerald Lake	17	208	4E	10,132	7.2	33	3.3
Slide Lake	32	208	4E	10,147	2.0	26	1.0
Jet Fox Reservoir	15	188	4E	10,192	30.4	25	6.6
Blue Lake	20	208	4E	10,261	11.9	22	1.6
John August Lake	35	178	4E	10,303	7.2	2	9.8
Island Lake	18	208	4E	10,319	28.2	21	3.3
Middle - 3 Lakes	31	208	4E	10,394	4.9	5	1.6

TABLE II-23

LOCAL COMMUNITIES SUPPLIED BY WATER
FROM THE MANTI-LASAL NATIONAL FOREST

Watershed	Portion of Watershed Providing Municipal Supplies		Municipalities Served	Population Served	Subwatershed Source
02 Price River	76%	95 mi ²	Halper Kenilworth Wellington Price Spring Glen	3,710 500 1,410 9,400 545	Fish Creek Price River Price River Water District Socofield Reservoir Price City
03 San Pitch River	18%	48 mi ²	Ephraim Manti Sterling Spring City	2,803 2,088 300 676	Ephraim Canyon Manti Canyon Sterling Spring Oak Creek
04 Huntington Creek	100%	198 mi ²	Cleveland Elmo Huntington Lawrence	684 342 2,622 100	Rilda Canyon Rilda Canyon Little Bear Canyon Big Bear Springs Huntington Creek Tie Fork Rilda Canyon
05 Straight Canyon	100%	205 mi ²	Castle Dale Orangeville	2,052 1,140	Straight Canyon Straight Canyon
06 Ferron Canyon	79%	142 mi ²	Clawson Ferron	100 1,173	Ferron Community System Millsite Reservoir
07 Maddy Creek		132 mi ²	Moore	342	Maddy Creek
10 Indian Creek	1%	2 mi ²	Blanding	3,787	Head of Indian Creek
12 San Juan River	10.8%	22 1/2 mi ²	Blanding	3,787	Head of Johnson Creek Recapture Creek
13 Montezuma Creek	12%	5 1/2 mi ²	Monticello	2,575	North Creek - South Creek
15 Fountain Green	7%	2 mi ²	Wales	153	Wales Spring
16 Chicken Creek	53%	4 mi ²	Levan	450	Chicken Valley
18 Paradox Creek	1%	0.6 mi ²	LaSal	200	Coyote Spring

Total Area = 852.6 mi²
 Total Area of National Forest = 2,203.9 mi²

$$\frac{852.6}{2,203.9} \times 100 = 39\%$$

TABLE II-24

COUNT OF WATER USE BY CATEGORIES, MANTI-LASAL NATIONAL FOREST (10)
(AS OF 1980)

Watershed Number	Uses						Rights					
	Livestock	Recreation	Administrative	Wildlife	Other	Total	Beneficial Uses	Appropriative Filed	Certified	Reserved	Decreed	Filed (AJ)
001	188	1	0	0	0	189	0	5	6	0	0	145
002	217	2	2	0	1	222	0	6	6	2	0	193
003	583	15	2	0	1	601	0	2	3	3	0	0
004	367	3	2	0	0	372	0	5	5	2	1	371
005	692	1	1	0	6	700	1	4	4	6	0	697
006	719	4	0	0	2	725	0	5	7	0	0	28
007	250	2	0	0	0	252	0	0	0	0	0	0
008	218	5	1	0	0	224	0	0	0	3	0	0
009	34	0	0	0	0	34	0	0	0	1	0	0
010	100	2	0	0	0	102	0	0	0	0	0	0
011	109	1	1	0	0	111	0	0	0	1	0	0
012	118	4	1	5	1	129	0	0	0	2	0	0
013	55	10	0	2	0	67	0	2	0	0	0	2
014	4	0	0	0	0	4	0	0	0	0	0	4
015	24	1	0	0	0	25	0	0	0	0	0	24
016	48	1	1	0	0	50	0	0	0	1	0	49
018	208	7	3	1	0	219	0	0	1	3	0	0
019	5	0	0	0	0	5	0	0	0	0	0	0
Totals	3,940	59	14	8	11	4,032	1	29	32	24	1	1,514

TABLE II-25

WATER USES IN ACRE-FEET
MANTI-LASAL NATIONAL FOREST (10)

Watershed Number	Uses						Rights					
	Livestock	Recreation	Administrative	Wildlife	Other	Total	Beneficial Uses	Appropriative Filed	Certified	Reserved	Decreed	Filed (AJ)
001	32.2	0.0	0.0	0.0	0.0	32.2	0.0	2.1	2.2	0.0	0.0	25.8
002	92.5	8.9	3.6	0.0	1.3	106.3	0.0	11.6	11.6	1.9	0.0	75.1
003	87.1	2.8	1.0	0.0	.1	91.0	0.0	1.3	1.7	1.1	0.0	0.0
004	46.9	1.9	.5	0.0	0.0	49.3	0.0	2.4	2.4	.5	.5	49.2
005	1,565.3	.3	2.2	0.0	1,886.5	3,454.3	.3	1,884.4	1,884.4	11.6	0.0	3,453.8
006	106.7	3.0	0.0	0.0	.2	109.9	0.0	3.2	3.3	0.0	0.0	45.1
007	26.7	0.0	0.0	0.0	0.0	26.7	0.0	0.0	0.0	0.0	0.0	0.0
008	585.7	6.4	.1	0.0	0.0	592.2	0.0	0.0	0.0	1.4	0.0	0.0
009	48.9	0.0	0.0	0.0	0.0	48.9	0.0	0.0	0.0	.2	0.0	0.0
010	11.6	0.0	0.0	0.0	0.0	11.6	0.0	0.0	0.0	0.0	0.0	0.0
011	63.3	0.0	.5	0.0	0.0	63.8	0.0	0.0	0.0	.5	0.0	0.0
012	23.6	1.5	.3	.5	.1	26.0	0.0	0.0	0.0	.4	0.0	0.0
013	10.8	6.6	0.0	.2	0.0	17.6	0.0	.3	0.0	0.0	0.0	.3
014	2.8	0.0	0.0	0.0	0.0	2.8	0.0	0.0	0.0	0.0	0.0	2.8
015	2.7	.1	0.0	0.0	0.0	2.8	0.0	0.0	0.0	0.0	0.0	2.7
016	8.8	.8	.1	0.0	0.0	9.7	0.0	0.0	0.0	.1	0.0	9.6
018	1,111.5	0.0	8.8	.1	0.0	1,120.4	0.0	0.0	7.8	8.8	0.0	0.0
019	.5	0.0	0.0	0.0	0.0	.5	0.0	0.0	0.0	0.0	0.0	0.0
Totals	3,830.4	32.3	17.1	.8	1,888.2	5,768.8	.3	1,905.3	1,913.4	26.5	.5	3,667.2

II-50

The demand for water is expected to continue to increase with the projected population increases. This expected increase in demand is greater than the maximum amount of water the Forest can produce and still meet water quality standards.

WATERSHED CONDITION

When the Manti and LaSal National Forests were established, the land was in poor watershed condition. While the condition has improved since time, considerable watershed improvement work is still necessary to bring watersheds up to an acceptable condition. These improvements may include topographic changes to reduce sediment yields and increase vegetative production capabilities of the land. Treatment is recommended in places where erosion and sediment yields are high and where treatment will reduce these processes. Almost every major watershed and every Ranger District have areas that need treatment.

Where watersheds have been treated, springs have been restored; there is tall grass and stands of brush where the land was barren. These improvements have captured potential flood waters that historically have damaged downstream communities. (The flood disasters of 1983 and 1984 did not originate on treated areas.)

The Wasatch Plateau has been identified as an area that may be suitable for snowfencing to delay runoff and to increase water yield. Historic research is inconclusive on the effectiveness and impacts of snow fencing. Future researchers may wish to investigate the economic and environmental conditions associated with snowpack manipulations on the Plateau.

WATERSHED IMPROVEMENTS MAINTENANCE

Mechanical watershed improvements in the form of contour furrows, trenching, and gully control structures have been installed on over 32,000 acres at a cost of over three million dollars. The purpose of these improvements is to slow water movement and hold the soils in place until vegetation is established that will perform these functions. Without periodic maintenance, these structures can weaken and fail before the vegetation is established so maintenance activities are scheduled and carried out as funding is available.

Minerals

Statutory and regulatory direction separate mineral resources on lands owned by the United States into three categories: locatable, leasable, and saleable.

Less than one percent of the Forest has lands with outstanding and reserved rights or lands which are not available for mineral entry.

LOCATABLE MINERALS

Locatable minerals are subject to exploration and development under the U.S. General Mining Law of 1872 and its amendments. Examples include, but are not limited to, deposits of vanadium, uranium, gold, silver, lead, zinc, and copper. Citizens, and those who have declared their intent to become citizens, have the right to claim, develop, and purchase mineral deposits subject to the U.S. Mining Laws on lands in Federal ownership, including those of National Forest System. Through a memorandum of understanding between the Bureau of Land Management (BLM) USDI, and the Forest Service, USDA, the Forest Service administers most aspects of the U.S. Mining Laws on National Forest System lands. In addition, under the regulations in 36 CFR 228, the Forest Service approves exploration and mining operating plans and administers those operations to ensure protection and reclamation of affected surface resources.

The LaSal Division contains known deposits of uranium/vanadium ores and other metals such as gold, silver, copper, and zinc. Approximately 50,000 mining claims have been staked on the LaSal Division, mainly for development of uranium/vanadium, gold, silver, and copper. The uranium ore is of low grade and local industry cannot compete economically on the world market with the present price of yellow cake below \$20.00/lb. The price has to be in the range of \$25.00/lb. or higher in order for the local industry to compete. With the high cost associated with mining and the low ore grade, exploration and mining activities have been limited in recent years. Considerably fewer claims have been staked on the Manti and San Pitch Divisions. The interest here is generally for development of limestone, decorative stone, or carbonaceous shale (which is suitable as a base material for fertilizer and soil conditioner).

The market for locatable minerals is extremely volatile, especially regarding uranium/vanadium and precious and semi-precious metals. The level of activity and production on the Forest at any given time is controlled by boom and bust cycles in the respective markets.

Within the Forest, 1,237,850 acres are considered available for locatable mineral entry and location. The balance, 96,650 acres, is withdrawn from entry for administrative, recreation, or cultural purposes.

LEASABLE MINERALS

Federally owned leasable minerals include but are not limited to coal, gas, oil, oil shale, geothermal, potassium, sodium, carbon dioxide, phosphate and sulfur. Most of these minerals are subject to exploration and development under leases, permits, or licenses granted by the Secretary of the Interior. The major controlling statutes are the Minerals Leasing Act of 1920 and amendments, the Minerals Leasing Act for Acquired Lands of 1947, the Geothermal Steam Act of 1970, the Federal Coal Leasing Amendments Act of 1975, and the Surface Mining Control and Reclamation Act of 1977. The Secretary of the Interior's authority is administered by the BLM and the Office of Surface Mining (OSM). When National Forest System lands are involved, the BLM/OSM requests the Forest Service to evaluate leases, licenses, permits, and operating plans. If the proposals are acceptable to the Forest Service, appropriate stipulations are formulated and designed to minimize the impacts on other uses and surface resources, and to provide for prompt reclamation or restoration of affected lands upon abandonment of operations.

Prior to approval of operating plans, the Forest Service participates with BLM or OSM in the formulation of the site-specific terms and conditions of operating plans so that the plans provide appropriate mitigation measures to ensure that adverse impacts on surface resources will not exceed applicable environmental protection standards. Plans must be designed to minimize the impacts of operations on other surface resources and to provide for prompt reclamation or restoration of affected lands upon abandonment of operations.

Approximately 85 percent of the lands administered by the Forest are leased for oil and gas. Lands administered by the Forest are available for oil and gas leasing under current management direction, with the exception of 60,000 acres in the Dark Woodenshoe Management Unit, established by the Monticello Land Use Plan (MLUP) approved in 1976. Eight other management units established by the Ferron-Price Land Management Plan, approved in 1979, are available for leasing, but surface occupancy is prohibited.

There are 4 gas fields on the Forest, all on the Manti Division. Only one field, the Clear Creek Field, is in production. Existing wells in the other fields, the Gordon Creek, Joe's Valley, and Flat Canyon Fields, are played out or shut-in for future production. The San Pitch Division and western portion of the Manti Division lie along the eastern margin of a geologic structure known as the "Western Overthrust Belt" which has recently yielded significant discoveries and production

of oil and gas reserves. The entire Forest has been affected by the intense interest in oil and gas exploration and development generated by recent discoveries. The Manti Division contains approximately 1,600 oil and gas leases. The estimated oil and gas resources below the Known Geologic Structures (KGS) or the rest of the Forest have not been released by private industry.

The Wasatch Plateau Coal Field, as delineated by the Department of Interior in their letter to the Forest, dated January 24, 1983, contains 445,100 acres of medium or high potential coal lands on the Manti Division of the Forest. The Manti Division encompasses a majority of the Wasatch Plateau Coal Field and has vast reserves of high quality mineable coal. Approximately 60 percent of the total coal produced in the State of Utah in 1981 (13.3 million tons) was mined from the Manti Division (8.0 million tons). The coal was produced from a total of 9 mines. At that time, there were 50 existing leases on the Forest that encompassed approximately 41,900 acres. This leased land may contain upwards of 1,000,000,000 tons of coal. Considering today's market, local coal mined underground is valued between \$22 and \$25 per ton. The Federal government receives \$1.74 for each ton of coal mined. The public interest for the high BTU-low sulphur coal found on the Manti Division is high.

The coal lease moratorium imposed by the Department of Interior in 1971 was lifted in 1979 by the establishment of a new program directed at the improved management of Federally-owned coal. This created the need to apply the unsuitability criteria to all lands which may be capable of coal production as part of this planning effort.

The first round coal leasing effort in 1981 under the new coal leasing program resulted in leasing of 3 new coal tracts consisting of a total area of 2,926 acres on National Forest System lands.

Though the present coal market is depressed, eight potential coal lease tracts comprising nearly 37,300 acres were evaluated in the second round of leasing. They contain almost 730 million tons of in-place coal.

SALFABLE (COMMON VARIETY) MINERALS

Common variety minerals have been developed throughout the Forest. They are generally low value deposits of sand, gravel, clay, and stone. The greatest demand is for the development of gravel sources for road construction and improvements in support of mineral activities. Within the Forest, at least 1,237,850 acres are available for the production of common variety minerals.

Support Service Elements

Fire

CURRENT USES AND MANAGEMENT

Wildfires have periodically burned areas of the Forest. These fires have affected the type, composition, age, quality, and growth rate of the various vegetation types. On an average, 51 fires burn a total of 105 acres annually on the Forest. Approximately five percent of the fires are human caused. Human caused fires are expected to increase with population growth and proportionate increases in Forest visitor use. Table II-26 summarizes the fire statistics for the Forest.

The current fire management program is based on resource protection from fire through presuppression, prevention, and fuel treatment. The overall fire management objective is to provide a cost-effective program which responds to land and resource management goals and objectives. Presently, the wildfire suppression objective is to confine or control all wildfires so that land management objectives can be met at a reasonable cost.

Fuel treatment to reduce fire hazard has been largely accomplished by removal of dead and down material for fuelwood, slash cleanup of timber sales and Timber Stand Improvement (TSI) activities, and prescribed burning. From 1978 to 1984 the Forest has averaged 350 acres of slash cleanup annually.

TABLE II-26

FIRE STATISTICS
(1971-1979)
NUMBER OF FIRES

Year	Human Caused	Lightning	Class* A&B	Class** C+	Class Total	Acres Burned
1971	7	42	47	2	49	273
1972	10	38	48	0	48	25
1973	9	36	44	1	45	36
1974	12	48	59	1	60	93
1975	10	26	36	0	36	13
1976	8	66	70	4	74	145
1977	8	53	60	1	61	65
1978	12	26	36	2	38	239
1979	22	25	46	1	47	56
Total	98	360	446	12	458	945
Average	11	40	50	1	51	105

*Class A = Less than 1/4 acre.

*Class B = 1/4 acre to 10 acres.

**Class C+ = 10 acres or greater.

Law Enforcement

The Forest Service is responsible for enforcing Federal laws and regulations on the National Forest. This responsibility cannot be delegated to other agencies or local law enforcement entities although the Forest Service may cooperate with State and local agencies in enforcing certain State laws on National Forest System lands. The Sisk Act provides statutory authority to reimburse local and State law enforcement agencies for the protection of persons using National Forest System lands and property. Agreements are in effect with Sanpete, Emery, and San Juan Counties.

The Forest has identified the following law enforcement concerns:

1. Detailed records have not been maintained for all violations. This has prevented an accurate determination of the Forest law enforcement problems. Loss of signs, facilities, fuelwood, and equipment is believed to be substantially more than reported.
2. Theft and vandalism to archeological sites is occurring.
3. Damage to resources is resulting from vehicular travel activities, particularly during hunting season and because of encroachment into areas closed to vehicular travel.
4. A lack of adequate facilities to handle the large number of people who visit the Forest at peak periods leads to violations.
5. Encroachment sometimes occurs on National Forest System lands by adjoining landowners. Months or even years can elapse before violations are discovered and investigated. Several old cases have not yet been resolved.
6. Select timber, fuelwood, and grazing unauthorized use is occurring.
7. Most employees assigned to recreation and fire prevention receive law enforcement training. This training is not adequate to handle many of the law violations they encounter. In addition, threats, intimidations, and assaults on Forest officers are expected to increase, particularly to those responsible for compliance checking and fee collection. Lack of highly trained and experienced employees is expected to be a continuing problem.

Forest Pest Management

Forest insects and diseases can have a direct and very significant impact on many of the Forest's resources. Insects and diseases have caused widespread damage to the timber resource. They have also impacted and caused losses in forage production on many reseeded range sites.

Two insects, the mountain pine beetle (Dendroctonus ponderosae) and the Engelmann spruce beetle (Dendroctonus rufipennis), are of the most concern to the Forest timber resource.

Other insects that have caused problems on the Forest are: aspen leaf miner (Phyllocnistis populiella), roundheaded pine beetle (Dendroctonus adjunctus), Douglas-fir beetle (Dendroctonus pseudotsugae), Mormon crickets (Anabrus simplex), grasshoppers (Melanoplus spp.), and black grass bugs (Labops hesperius).

Any of the above listed insect species can, under the right conditions, cause significant damage and impact on one or several resources. However, with good management practices and continued awareness of population buildups, most of these insects can be controlled or maintained at levels where significant resource damage would not occur.

Insects that have caused range damage on the Forest are the Mormon cricket, Carolina and two striped grasshopper, and black grass bug.

Approximately 15,000 acres located in Twelve Mile, Manti Canyon, and on the Wales top were treated with malathion insecticide to control grasshoppers in the early 1970's. Weather conditions during the early 1980's favored grasshopper reproduction with the result that the population is growing and control may again be needed.

Black grass bugs are present in most of the wheat grass seedings on the Forest. They have not been a serious threat to date, but must be monitored to insure that population buildups do not damage these rangelands.

The tree diseases that are the most common are the brown root rot (Fomes annosus), white mottled root rot (Fomes applanatus) and shoestring root rot (Armillaria mellea). Root rots cause mortality and growth loss in localized areas. These fungi survive as saprophytes in stumps and pose a threat to any regeneration on infected sites.

Dwarf mistletoe, a semi-parasite, has caused significant losses in both Douglas-fir and ponderosa pine trees on the Forest. A roadside survey conducted on the Forest in 1978 showed that 34 percent of the ponderosa pine sites surveyed were infected. Timber losses continue to increase because dwarf mistletoe intensity increases at an average of one severity class every 15 years. Any natural regeneration on these sites could become infected at an early age and could sustain heavy losses before harvest age.

Air Quality

The entire Forest is designated as air quality Class II.

Air quality over the Forest is believed to be good with respect to air pollutants. The largest source of air pollution from Forest activities is smoke from fires (both wildfires and prescribed fires) and fugitive dust from unpaved Forest Development Roads.

The Clean Air Act and its 1977 amendments give the States most of the responsibility for managing air quality within their boundaries. The framework for air quality management is the State Implementation Plan. This establishes standards and guidelines which require forest plans to identify significant current and potential air pollution emissions from management activities that would cause the ambient air quality to exceed Federal and State ambient air quality standards. It also establishes standards and guidelines relative to incremental changes in air quality in Class I and Class II areas.

The Forest's role in air quality management is to coordinate Forest management activities with State and Federal air quality control efforts. This is accomplished by properly managing Forest management activities such as prescribed fire, construction and use of roads, and the operation of various facilities. Temporary air degradation does occur, but is managed so that air quality standards are not exceeded.

Some air quality problems come from communities and industrial development adjacent to the Forest, especially in Carbon, Emery, and Sanpete Counties. However, the actual potential for long-term degradation of air quality over the Forest is low because potential point sources of air pollution upwind (north and west) of the Forest are legally restrained from creating significant adverse effects upon Forest air quality-related values.

The Forest Service's responsibility under PSD (Prevention of Significant Deterioration) regulations is to protect Class I air quality areas. Two Class I air quality areas are near the Manti-LaSal National Forest including Canyonlands National Park north of the Monticello Ranger District and Arches National Park west of the Moab Ranger District. In both cases, these Parks are normally upwind of the National Forest.

The Forest complies with the State agricultural burning application and permit requirements.

There is a concern about potential air quality degradation from wood stoves and fireplaces. This also has been a concern to the Forest Service and EPA. Studies are ongoing to determine the extent and significance of impact. Ultimate responsibility for regulations and control belong with the States of Colorado and Utah.

Lands

LAND USES

National Forest System lands are generally available to occupancy, where such is in the public interest, except where occupancy is specifically prohibited through legislation or administrative decision. Occupancy is authorized through the issuance of special use permits. Nearly 400 special-use permits have been issued for uses ranging from recreation to research to utilities. The demand is increasing for special use permits to occupy National Forest System lands. This demand can likely be attributed to the Forest's mixed landownership pattern and the increasing population.

Applications for special uses are dealt with on a first-come, first-serve basis, except that occupancies providing for a public need receive priority over those meeting private needs. If competition occurs in the application process, a prospectus is issued for bids. Following a bid evaluation, a permit would be issued with the purpose of obtaining the greatest public benefit. The Forest Service discourages special uses that solely benefit private parties, and also discourages uses on parcels which may be involved in land exchanges in the future.

In administering special uses, priority is given to those with health and safety considerations such as water supplies, reservoirs, and public roads.

Prime farmland, rangeland, and forest lands, as defined in the Secretary of Agriculture's Memorandum Number 1827, Supplement 1, do not occur on the Forest. Therefore, no such land use considerations were included in the planning effort.

CORRIDORS

Special uses for powerline, pipeline, and highway rights-of-way are another use of National Forest System lands. Because of its location, there is a high demand for rights-of-way across the Manti Division. There are four major powerlines (745 KV) and one pipeline crossing the Forest and four State or Federal highways. There are no corridors.

LANDOWNERSHIP ADJUSTMENT

Landownership within the Forest includes private lands, mineral fractions, and lands owned by other Federal agencies, the State, Counties, and municipalities. Ownership changes occur through land exchange, fee purchase, and - more recently - the use of scenic easements to acquire certain rights short of fee ownership. Exchange activity has been low in the past due to uncertain funding and few proposed exchanges which would benefit the public.

The Small Tracts Act allows for three categories of land: (1) parcels encroached on through sale or exchange, (2) road rights-of-way, and (3) mineral survey fractions. There are very specific limitations for each of the categories.

Occupancy trespass involves the identification, investigation, and resolution of non-mineral related unauthorized occupancy and use of the Forest. There are suspected occupancy trespasses resulting where private landowners have constructed improvements on adjacent National Forest System lands. Where boundary lines are not surveyed, the Forest Service has increased efforts to do so. It is anticipated that ongoing surveys of township and property boundaries will identify more occupancy trespass.

Forest landownership adjustments are coordinated with the plans and programs of other Federal agencies and State and local governments. Both private and government interest in landownership adjustment is expected to increase from the present level.

WITHDRAWALS

A withdrawal is an order removing a specific tract of land from availability for certain uses. Certain lands administered by the Forest Service may be withdrawn from entry and appropriation under various acts of Congress.

Land withdrawals by the Forest Service are made for minerals, power sites, archeological values, recreation sites, and administrative sites. The Bureau of Reclamation has withdrawals for reclamation and the Federal Energy Regulatory Commission has withdrawals for power sites. Congressional withdrawals have been made for certain activities within the Dark Canyon Wilderness.

A review and assessment of existing mineral withdrawals is required by Section 204 of the Federal Land Management and Policy Act. Present direction to all Federal agencies is to review land withdrawn from entry under the 1872 Mining Act by 1991, and revoke those which create an unnecessary encumbrance on the land.

RIGHTS-OF-WAY ACQUISITION

Increasing use and development of National Forest System lands has resulted in many problems. One of these problems is access to National Forest System lands for the general public.

Landowners often enjoy nearly exclusive use of public land through control of access. Because of the mixed landownership pattern of the Forest and the lack of fences and signs, the status of rights-of-way (ROW's) for roads and trails is often uncertain.

The current emphasis is to acquire ROW's where problems from lack of access are the greatest and where property owners are willing to grant or sell easements. The right of eminent domain (condemnation) has not been used in the past. It may become necessary when a ROW is in the public interest and the property owner is unwilling to grant it.

SPECIAL AREAS

Currently 4,659 acres of the Forest are designated as special areas.

- The Great Basin Experimental Range (4,608 acres) was established for range and hydrological research.

- The Grove of Aspen Giants is a special scenic area (10 acres) containing some very large aspen trees.

-The Pinhook Battleground is a historical site (one acre) where a group of Indians battled ranchers that were chasing them.

-The Elk Knoll Research Natural Area (40 acres) was established to preserve and interpret ecological trends of soil and vegetation, under protection of grazing from domestic livestock.

Dispersed recreation is permitted in some special areas. Some motorized use is permitted on designated routes in the Great Basin Experimental Range.

The Department of Interior has identified four National Natural Landmarks on the Forest. They include Fisher Towers - Onion Creek Gorge in Grand County, Manti Canyon slide and Maple Canyon - Box Canyon in Sanpete County, and Mount Peale - Dark Canyon glacial features in San Juan County.

Nelson Mountain, Mount Peale, and Cliff Dwellers Pasture proposed Research Natural Areas (RNA's), and the Scad Valley proposed Botanical Area are additional sites that have been identified for possible formal designation. They will be evaluated by research and administrative personnel in the near future. These areas are described as follows:

1. Nelson Mountain - Approximately 490 acres located in portions of Sections 22, 23, 26, 27, 34, and 35 of T20S, R6E, Salt Lake Meridian (SLM). This area is located in Emery County, Ferron Ranger District. Principal features include vegetative communities of curleaf mountain mahogany woodlands, black sagebrush and mountain big sagebrush. Minor representation of the white fir coniferous forest series is also present.
2. Mount Peale - Approximately 2,380 acres in portions of Sections 11, 12, 13, 14, 15, 22, 23, and 24 of T27S, R24E, SLM. This area is located in San Juan County, Moab Ranger District. Principal features include several types of alpine turf, rock communities, and high-mountain landforms. Minor representation of the subalpine fir coniferous forest series is also present.
3. Cliff Dwellers Pasture - Approximately 265 acres in portions of Sections 22, 23, and 27 of T34S, R21E, SLM. This area is located in San Juan County, Monticello Ranger District. It is a species-rich, sub-irrigated box canyon surrounded by semi-desert habitat. Principal features include birch/bluegrass communities, gambel oak-bigtooth maple woodlands, and slickrock shrub communities.
4. Scad Valley Botanical Area - This area is located in Emery County on the Price Ranger District. It supports a number of disjunct plant species which do not occur elsewhere on the Manti-LaSal National Forest, and which are uncommon in Utah.

Facilities

Forest facilities include Forest Highways, Forest Development Roads and Trails, and buildings such as guard stations, ranger stations, and warehouses. In addition, the Forest is affected by general transportation facilities such as airports and railroads.

GENERAL TRANSPORTATION

Airfields serving the planning area include noncommercial airfields at Blanding, Monticello, Moab, Price, Huntington, Ephraim, Mount Pleasant and Nephil. The area is served by the Denver Rio Grande Western Railroad (D&RGW) line that goes from Denver to Salt Lake City through Price with a station in Helper. The D&RGW has a track line to Scofield serving coal mines in that area, and a track

line to Moab serving the Potash and uranium mines in that area. The D&RGW had a track line in Sanpete Valley that was cut by the Thistle mudslide and has not been restored. Utah Railway has a line serving the coal mines along the east escarpment of the Wasatch Plateau to Huntington and joins the D&RGW at Helper, with a track to Salt Lake City. Several bus lines use the major highways for transit and sightseeing charter services.

HIGHWAYS AND ROADS

Highways - A list of Federal and State highways that provide access to the Forest is found in Table II-27. These routes parallel the Forest boundaries with the exception of the Forest Highways which are important crossing links and internal collectors on the Forest.

Forest Highway 7 (SR 31), the Fairview Huntington Highway connecting Fairview and U.S. Highway 89 on the west with Huntington and State Route 10 on the east, is the only bituminous paved route across the Forest. It carries heavy cross Forest traffic, minerals exploration, development, and production traffic and recreation traffic. This road is at the highest standard of any arterial or collector road on the Forest.

Forest Highway 8 (SR 29), the Orangeville-Ephraim Highway connecting Ephraim and U.S. Highway 89 on the west with Orangeville and State Route 10 on the east, is below standards for a Forest Highway. Some 13.1 miles of the route under county jurisdiction should be upgraded and 11.8 miles under county jurisdiction could be resurfaced.

Forest Highway 45 (SR 96), the Eccles Canyon Highway, connects the Eccles Canyon mining area and Scofield Recreation area with U.S. Highway 6 to the northeast and Fairview and Huntington via Forest Highway 7 to the west. This route is being reconstructed by the State Department of Transportation for Carbon, Emery, and Sanpete Counties, with prepaid sales taxes from mineral development in the area. A two-lane bituminous facility has been approved for the route, and all drainage and grading is complete. This route moves recreation traffic to the Scofield Recreation facilities, moves the work force to the mines, and removes the mineral products from the area.

TABLE II-27

FEDERAL AND STATE HIGHWAYS PROVIDING ACCESS TO THE FOREST

Forest Division	Interstate Highway Number	United States Highway Number	State Routes Number	Forest Highway Numbers**
Manti	70	6 89	10	None
			31	7
			29	8
			96	45
LaSal	None	191	46	None
			128	None
			95	None
			211	None
San Pitch	15	89	28	None
			132	None
			117	None

** Forest Highway number for portion of State Route crossing the National Forest.

The Forest has 1,264.4 miles of inventoried Forest Development Roads, and 112.1 miles of Forest Highways. Most of the Forest Development Roads are local, although 654 miles are arterials and collectors. See Tables II-28, II-29, and II-30. Many other Federal, State, and County roads also provide access to the Forest. In addition, there are approximately 1,500 miles of noninventoried roads not included on the Forest Development Roads inventory.

TABLE II-28

FOREST DEVELOPMENT ROAD SYSTEM
FOREST SERVICE JURISDICTION
 Classification, Surface/Grading, Maintenance Level
 (Miles)

<u>Classification/ Maintenance Level</u>	<u>Subtotal Total</u>	<u>Primitive Undrained</u>	<u>Native Graded Drained</u>	<u>Aggregate Graded Drained</u>	<u>Bituminous Graded Drained</u>
Arterials	36.4			36.4	
1					
2					
3					
4	36.4			36.4	
5					
Major Collectors	186.7	9.6	119.7	49.4	8.0
1					
2	9.6	9.6			
3	169.9		119.7	49.4	1.0
4	7.2			0.2	7.0
5					
Minor Collectors	356.7	91.8	246.5	18.4	
1					
2	113.3	78.6	34.7		
3	241.4	13.2	211.8	16.4	
4	2.0			2.0	
5					
Locals	684.6	483.0	169.1	24.2	8.3
1	3.4	3.4			
2	503.5	478.3	21.6	3.6	
3	167.7	1.3	147.5	18.5	0.4
4	8.9			2.1	6.8
5	1.1				1.1
Total	1,264.4	584.4	535.3	128.4	16.3

TABLE II-29

FOREST DEVELOPMENT ROAD SYSTEM
STATE OR COUNTY JURISDICTION
Classification, Surface/Grading, Maintenance Level
(Miles)

<u>Classification/ Maintenance Level</u>	<u>Subtotal Total</u>	<u>Primitive Undrained</u>	<u>Native Graded Drained</u>	<u>Aggregate Graded Drained</u>	<u>Bituminous Graded Drained</u>
Major Collectors	34.7				
1					
2	3.1	3.1			
3	21.2		3.2	17.5	0.5
4	10.4			8.8	1.6
5					
Minor Collectors	22.1				
1					
2	7.9	7.9			
3	13.2		4.5	8.7	
4	1.0			1.0	
5					
Locals	13.7				
1					
2	7.5	7.5			
3	6.2		6.2		
4					
5					
Total	87.7	18.5	13.9	36.7	18.6

TABLE II-30

FOREST HIGHWAY SYSTEM
STATE OR COUNTY JURISDICTION
Classification, Surface/Grading, Maintenance Level
(Miles)

<u>Classification/ Maintenance Level</u>	<u>Subtotal Total</u>	<u>Primitive Undrained</u>	<u>Native Graded Drained</u>	<u>Aggregate Graded Drained</u>	<u>Bituminous Graded Drained</u>
Arterials					
1					
2					
3	13.1		13.1		
4	11.8			11.8	
5	87.2				87.2
<hr/>					
Total	112.1		13.1	11.8	87.2
<hr/>					

Significant Forest Development Roads - There are four Forest Development Roads receiving a significant amount of use and providing access to major portions of the Forest. They are:

Skyline Drive is a major north-south route that runs the length of the Manti Division. The route runs from U.S. Highway 6 on the north to Interstate 70 on the south via the Fishlake National Forest.

Ferron-Mayfield Road is a major west-east route across the lower portion of the Manti Division between Ferron on State Route 10 and Mayfield on U.S. Highway 89.

The LaSal Loop Road is a scenic and recreation route on the Moab Ranger District.

Miller's Flat Road is a major north-south route connecting Forest Highway 7 on the north to Forest Highway 8. This route services the Miller's Flat Reservoir, Upper Joes Valley, and Joes Valley recreation areas.

Road Management/Maintenance - About 24 miles of road are constructed, reconstructed, or surfaced annually. Historically, roads constructed for management activities were left open for motorized public use. During the last few years, roads have been closed or restricted to provide nonmotorized recreation opportunities, to reduce disturbances to wildlife, damage to roads and adjoining areas, and maintenance costs.

The current and anticipated maintenance allocations are insufficient to properly maintain the entire inventoried road system without experiencing significant lowering of the current facility standards. During the period 1977 to 1981, 1,138 miles of road were maintained on an annual basis. However, less than one percent were maintained at Level 1; 51 percent at Level 2; 41 percent at Level 3; four percent at Level 4; and less than four percent at Level 5. Level 1 maintenance is the lowest maintenance effort and Level 5 is the highest maintenance effort.

Some roads and trails are maintained by counties, mineral developers, timber purchasers, private landowners, landowner associations, user groups, permittees, and volunteers. The Forest Service coordinates the work of these groups.

The demand for use of Forest Development Roads is significant. Currently, congestion occurs primarily on public roads rather than Forest Development Roads and most often at the beginning and end of weekends. Four-wheel-drive interests want continuing opportunities for vehicular travel and primitive road use. The owners of private inholdings want access to their property. Sightseers want more roads with better driving surfaces. In the immediate future, demand for more and better roads is expected to increase. The biggest demand in the near future is expected to be access for mineral exploration and/or development. There is also a segment of the public that wants fewer roads and more opportunities for nonmotorized recreation.

TRAILS

Current Uses and Management - There are 809 miles of Forest Development Trails on the Forest and an unknown number of miles of noninventoried trails. Visitor control to disperse use more uniformly has not been practiced. Horseback use is permitted on all trails. No trails on the Forest are reserved exclusively for horse use. Most trails are open to vehicular travel use.

Most trails have been constructed in large undeveloped areas where other types of access do not exist. Cross country travel routes that begin to show signs of use have been cleared and managed as trails. Trails have been managed to permit or restrict use according to compatible uses, resource needs along the trail, and the desires of current and potential users.

National Recreation Trails - There are two National Recreation Trails on the Forest. Fish Creek-Skyline Drive National Recreation Trail is ten miles in length.

Left Fork of Huntington Canyon National Recreation Trail is four miles long and runs from Scad Valley near Millers Flat Reservoir to the Left Fork of Huntington Creek Campground.

Significant Trails - The Manti Division contains only one significant trail (other than the National Recreation Trails), which is the Horse Creek-Scad Valley Trail. On the LaSal Division, the significant trails include LaSal Mountain Trans-Mountain, Bachelor Basin (trails), Skyline, Woodenshoe-Dark Canyon, Trail Canyon, Rig Canyon, and Robertson Pasture-Twin Peaks trails.

Trails are maintained on a periodic basis; the frequency is determined by trail use, need for maintenance, and funding. The Forest has not constructed or reconstructed trails in the past five years.

Demand Trends - Projected demand for trails is expected to increase along with the demand for dispersed recreation opportunity.

NON-TRANSPORTATION FACILITIES

The existing administrative site buildings and facilities are considered inadequate to support the Forest program of work because of: (1) safety and health problems, (2) location with respect to anticipated work loads, (3) inadequate capacity for anticipated work loads, or (4) a combination of one, two, and three.

The Forest has 74 buildings. Eleven percent are under 15 years of age and require normal preventive maintenance, 22 percent are from 16 to 35 years of age and require high maintenance or repair to prolong usefulness, and 67 percent are over 36 years old and require excessive maintenance and extensive repair to prolong life of the facility.

Half of the 25 administrative sites require major maintenance, reconstruction, or replacement of water and sanitation facilities in order to adequately serve the public and Forest employees.

The Forest maintains and operates the following administrative sites:

1. Moroni Guard Station
2. Ephraim Administrative Site
3. Ferron Administrative Site
4. Joes Valley (Orange Olsen) Administrative Site
5. Moab Administrative Site
6. Monticello Administrative Site
7. Stuart Guard Station
8. Mammoth Guard Station
9. Lake Guard Station
10. Upper Joes Valley Guard Station
11. Seely Creek Guard Station
12. Mt. Baldy Guard Station
13. Indian Creek Guard Station
14. Warner Guard Station
15. Buckeye Guard Station
16. LaSal Guard Station
17. Gooseberry Guard Station
18. Kigalia Guard Station
19. Castle Dale Administrative Site

An aggressive and adequately financed program is needed to replace unsalvageable facilities with fixed or mobile facilities, recondition or reconstruct salvageable facilities, carry out preventive maintenance on newer facilities, and disposal of unneeded or unsalvageable facilities.

The Forest has a major responsibility for the inspection of special-use dams and electronics sites.

The Forest operates and manages electronic communications sites on Cedar Mountain, Abajo Peak, Bald Mesa, Horseshoe Flat, Monument Peak, Cold Spring, and Sanpete Point. The developments at these electronic sites are not adequate to handle current and future needs. Microwave radio telecommunications systems are being installed to improve communications and service and to reduce operating costs.

Response to Issues and Concerns to be Addressed

As issues and concerns were collected, opportunities to resolve them were identified. Additional opportunities were developed as the Interdisciplinary Team proceeded with the analysis. The issues and concerns were grouped by the Forest Interdisciplinary Team into like subjects, and Management Questions were formulated to encompass the problems portrayed by the issues and concerns within each subject. The following is a listing of Management Questions:

QUESTION NO. 1: TO WHAT EXTENT SHOULD LAND MANAGEMENT AND EMPHASIS FOR WILDLIFE AND FISH HABITAT BE CHANGED?

Generally, little change in land management and emphasis is needed, although some specific changes were identified as being appropriate. Through the planning process, three Management Unit Requirements have been prepared to provide emphasis for wildlife and fish habitat management. Previously the distinction was not clearly made as to areas where wildlife management would be emphasized. KWR - Key Big-Game Winter Range and GWR - General Big-Game Winter Range place

emphasis on deer and elk use in areas they use every winter or during average winters. Lands were assigned to KWR and GWR emphasis based on a compromise in the wildlife needs and the need for other resource uses. RPN - Riparian provides for enhancement of riparian areas for aquatic and terrestrial habitat as well as watershed. All riparian areas on the Forest are managed under the RPN prescription.

Transplants of desirable wildlife species will be considered, on suitable habitat, where this use is compatible with the land management emphasis. This allows for reevaluating transplant proposals previously denied in unit plans. Management Direction provides for the evaluation of proposed transplants on a site-specific basis in cooperation with State wildlife management agencies and other interested parties.

Management Direction, and the 10 year schedule for wildlife improvements make provision for improving fisheries on the Forest by obtaining conservation pools when the opportunity presents itself, and by improving stream habitat. While this clarifies the Forest position, it does not change management or emphasis.

QUESTION NO. 2: HOW MUCH AND WHAT KIND OF ACCESS SHOULD BE PROVIDED FOR USE OF FOREST LANDS?

Historically, the Forest has encouraged access development for administration and use of Forest resources. This had led to environmental and administrative problems. In recent years, there have been attempts made to reduce unplanned roading and improve the needed system roads. This direction would be continued since the road density is in excess of that needed to provide for the resource activities and uses on the Forest. About 1,280 miles of roads would be included on the Forest transportation system, a reduction of approximately 200 miles. In addition, many of the non-system four-wheel drive ways will be closed through area closures. The trail system would remain approximately the same in mileage, but may change in location.

Through travel restrictions, the acreage closed to vehicle use would increase from 83,740 to 110,720 acres. However, the areas with restricted vehicle use would drop from 170,000 acres to 74,980 acres, leaving a net gain in areas with unrestricted vehicle use. The Management Direction is written so that these travel restrictions apply to general administration as well as recreation use. Where access is needed for a specific resource activity or use, entry may be permitted by the Forest Supervisor on a case-by-case basis, and after thorough assessment of the implications of such action.

QUESTION NO. 3: WHAT SHOULD BE THE MANAGEMENT EMPHASIS ON FORESTED LAND FOR TIMBER PRODUCTS AND SAWLOGS?

The Forest Plan increases the emphasis on managing fuelwood to meet increasing demands and maintaining other resource uses of dead and down material. The opportunity to manage for Christmas tree culture is provided. Low value conifers and broadleaf trees will be managed for fuelwood until other markets develop. Aspen stands will be perpetuated where they currently occur. Additional consideration will be given to managing white fir and piñon for Christmas trees. The General Direction documents the importance of managing forested land for the continued production of trees and wood fiber. High value conifers will generally be managed for sawlog production, which basically continues historic direction.

QUESTION NO. 4: WHAT LEVEL OF MINERAL ACTIVITY CAN FOREST LANDS SUPPORT?

Under current regulations, development of locatable minerals can continue in a manner that will return the land as near as possible to its original productive level and have minimal impact on other Forest uses. This Forest Plan emphasizes administration of mining claims and their eventual reclamation. The Forest cannot support unlimited coal development. Although, excluding the areas

under lease, the land considered available for coal leasing has been increased from 154,100 acres to 399,800 acres. Management Direction, applied through the unsuitability and multiple-use criteria application recorded in Appendix C to the Forest Plan, limits the area leased at one time so as to reduce impacts on other resources, and stay within multiple-use management thresholds.

The Forest can support more oil and gas leasing and development than previously considered. There are fewer areas closed to exploration and development, since many of the impacts from these activities can be mitigated.

QUESTION NO. 5: HOW SHOULD FOREST WATERSHEDS BE MANAGED?

The Forest Plan provides only one significant change in watershed management. This is the need to determine and protect instream flows to assure adequate water for the uses for which the Forest was established. Accordingly, the Forest will limit the removal of water from the natural water system to protect Forest values and the riparian ecosystems.

The Forest Plan requires maintenance or improvement of water quality. Since sediment has been identified as the current major pollutant, General Direction is toward reducing natural sediment flows. The reduction of natural sediment is stressed since most man-caused sediment is insignificant when compared to natural flows. Other resource uses on watersheds will be limited to protect the water values.

Consideration was given to increasing water quantity by vegetative manipulation or by snow fencing. It was felt that the land instability and current vegetation would make it very difficult for vegetative management to increase flow. Snow fencing was experimentally pioneered on this Forest many years ago, but the results were poor. Snow fencing does not appear to be economical and could cause environmental damage. However, the Forest would consider allowing interested parties to explore this type of snowpack manipulation.

QUESTION NO. 6: HOW SHOULD FOREST MANAGEMENT RESPOND TO ACTIVITIES ON ADJACENT NON-FOREST LAND?

The Forest should respond positively to activities on adjacent non-Forest lands. Goals in the human and community development area provide for public participation in the evaluation of proposed Forest activities. This includes consultation with adjacent landowners so that their interests can be considered in all cases and protected where feasible. Policy provides for issuance of special uses or permits on the basis of public need. Policy also provides for acquisition of land as needed to meet resource objectives, and the acquisition of easements where title is not needed.

These goals and policies are carried into the General Direction for Forest management.

QUESTION NO. 7: WHAT SHOULD FOREST POLICY BE ON UPGRADING RECREATION FACILITIES AND RECREATION MANAGEMENT?

Forest policy under the Forest Plan will be to reconstruct facilities that are damaged, destroyed or worn out, but to not upgrade sophisticated, high maintenance type facilities. Expansion can occur where it is appropriate.

Recreation management will be emphasized on four Management Units including the DRS - Developed Recreation Sites, UDM - Undeveloped Motorized Recreation Sites, SPR - Semiprimitive Recreation Areas, and DCW - Dark Canyon Wilderness Area. These will provide a broad range in recreational opportunities and experiences.

The program also calls for improved management of sites and access to reduce or eliminate damage from excessive use.

The length of stay will continue to be restricted.

QUESTION NO. 8: WHAT PORTIONS OF THE FOREST SHOULD BE MADE AVAILABLE FOR UTILITIES AND TRANSPORTATION CORRIDORS AND SERVICES?

Through the corridor analysis, Appendix D, the Forest has identified the routes that provide acceptable corridors and windows on the Forest. The existing State highway system is acceptable as transportation corridors. The transportation corridors are not acceptable as utility corridors, nor are utility corridors acceptable as transportation corridors, except the U-46/C-90 and Rattlesnake-Paradox corridor between new and old LaSal, Salt Creek Canyon at the north end of the San Pitch Division, and Mill Fork-Indianola at the northwest edge of the Manti Division.

QUESTION NO. 9: WHAT SHOULD BE THE LEVEL OF VEGETATIVE MANIPULATION ON GRASSLANDS, BRUSHLANDS, WOODLANDS, AND TIMBER LAND?

Vegetation should be manipulated at a level that will maintain healthy and diverse plant species. Standards and Guidelines for the various plant species provides direction on the level of vegetative manipulation. In most vegetative types, treatment may occur on a twenty year cycle. An exception would be the ponderosa pine type where a shorter cycle between treatments would be preferable to keep the basal area low, which allows for additional ground cover and a more rapid growth rate.

In general, the vegetation on Research Natural and Special Interest Areas and in Dark Canyon Wilderness may be altered only through natural activities such as grazing, browsing, insects, disease and fire. Exceptions to this may occur if the areas have been set aside for a purpose which allows vegetative manipulation.

QUESTION NO. 10: WHAT AREAS REQUIRE IMMEDIATE CONTROL OF FIRES AND WHEN SHOULD FIRES BE USED IN VEGETATIVE MANIPULATION?

General Direction identifies certain areas where immediate suppression will occur. These include areas where there is an opportunity for the loss of life or property, such as recreation areas or areas adjacent to private land.

Otherwise General Direction, Standards and Guidelines provide direction for confinement, containment, or control. This allows for wildfire or planned ignitions to be used for vegetative manipulation if they occur in fire prescription.

QUESTION NO. 11: WHAT SHOULD BE THE LAND MANAGEMENT AND EMPHASIS FOR LIVESTOCK PRODUCTION?

The Forest Plan calls for little change in land management or emphasis for livestock production. In general, the objective is to improve range conditions and to bring livestock use in line with forage production levels. The Forest continues to recognize the importance of livestock to social and economic stability of local communities.

QUESTION NO. 12: HOW CAN THE FOREST BEST REHABILITATE LANDS, FACILITIES, AND RESOURCES IMPACTED BY MASS LAND MOVEMENTS, MUDFLOWS, AND FLOODING, AND MINIMIZE THE IMPACTS OF FUTURE SIMILAR EVENTS?

Flooding is predicted to continue in the future. The mass land movements and mudflows could continue to move for several years. Many of the lost facilities and other damages can only be repaired after movement and flooding cease. The Forest has scheduled a multifunctional program for rehabilitation, with the hope that funds might be carried over from one year to the next so they can be obligated when it would serve a useful purpose. The proposed actions are carried in the Landslide and Flood Damage Repair Program.

The Forest has identified some areas where geological, hydrological, or soils data is needed prior to evaluating an activity to assure that potential landslides or flooding will not adversely effect the activity. Consideration of the data becomes a standard or guideline for evaluation of these activities.

Additional geologic, hydrologic, and soils inventories are needed to assure that all sensitive or hazard areas are identified. The Forest Plan schedules these inventories.

QUESTION NO. 13: HOW SHOULD THE CULTURAL, HISTORICAL, AND PALEONTOLOGICAL RESOURCES BE PROTECTED?

Generally, where the Forest Service has a reasonable degree of control over an activity, safeguards are adequate. Thus, the issue was not considered significant and was not carried forward into the EIS and Forest Plan. Recent information outlining the level of vandalism and theft, as well as loss of these resources to natural causes, has made it appropriate to reestablish this question as a major issue to address.

Archeologic and paleontologic sites occur on the Forest in varying densities, from a few to many sites per square mile. Few historical sites exist. Any activity has a potential for disturbing these sites. It is the intent of this Forest Plan to set direction that adequately protects these irreplaceable resources.

The Antiquities Act of 1906, the Historic Preservation Act of 1966, the Archeological Resource Protection Act of 1979, and the National Environmental Protection Act, define cultural and paleontological resource responsibilities and activities. In essence, these laws require that appropriate studies be conducted to provide the information necessary for an adequate review of the effect a proposed undertaking may have on cultural values, as well as giving adequate consideration of modifications or alterations to the proposed undertaking that could avoid, mitigate, or minimize any adverse effects.

Suggested Changes in Direction or Emphasis

The Analysis of the Management Situation identified some problem areas where changes in direction or emphasis may be appropriate. They are listed below by resource area. After each underlined statement of suggested change is the Forest Plan's response.

RANGE

Areas of excessive or under use indicate a need to bring livestock grazing use in line with the capacity of suitable range.

Forest-wide Direction is to bring livestock use in line with grazing capacity.

Some range fences, stock water developments, and corrals have deteriorated and/or no longer serve the purpose for which they were built.

Improvements that have deteriorated to the point where they no longer serve the purpose for which they were built are scheduled for removal or reconstruction based on the evaluation made in conjunction with Allotment Management Plans. Many of these facilities are included in the 10 year schedule for development. Others are delayed to the second 10 year period, owing to the funding constraint in the first period.

Range revegetation is necessary to restore some areas damaged by past over-use and to restore rangelands converted to other vegetative types through plant succession.

Range revegetation needed to restore rangelands to higher production levels has been identified. The 10 year range development program has scheduled several of these projects. Others are delayed to the second 10 year period or beyond, owing to the funding constraint in the first period.

TIMBER

The current demand for timber is somewhat less than the supply capability. Some timber cannot be harvested in a timely manner to keep the stands thrifty and growing, which leads to a build up in insects and disease.

High value species such as spruce, Douglas-fir, and ponderosa pine will be managed to keep the stands thrifty and growing. Intermediate cuts on these species and harvest of lesser value species, such as aspen and white fir, may be for fuelwood or similar uses in order to maintain the stand viability.

While much of the Forest is roaded, many roads are poorly located or inadequate for timber haul.

Funding for most timber sale road construction would continue to come from stumpage receipts, and most sales will continue to be below cost. Management Direction for timber sales requires that sale activity be coordinated with other resource activities so that major road costs can be shared, and thereby reduce the amount of stumpage receipts taken for road construction.

Increasing demand for fuelwood may provide a means for increasing salvage or harvest of wood products. Access to fuelwood areas may limit this use.

Demand for fuelwood can provide a means for salvage and for precommercial thinning. KV, TSI, and other funds taken from fuelwood receipts should provide a means for improving the use of fuelwood sales as a timber management tool, and to create access to timber stands needing treatment.

MINERALS

Current direction limits surface occupancy in some areas for mineral development which conflicts with certain national direction.

Current direction in unit plans has been relaxed and resolution of the RARE II problem, through the Utah Wilderness Bill, has eliminated many of the surface occupancy conflicts, and has made more land available for mineral activities.

Department of Energy assessments suggested coal mining on the Forest may reach 15 million tons per year by 1985 and approach 29 million tons by 1990. These projections were made prior to the current market trends, which may delay the date when the projected output levels are reached. A production level for the Forest (area A of the Ferron-Price Land Management Planning Unit) is currently limited to 15 million tons or less per year.

Area "A" concept of the Ferron-Price Plan, which included the Known Recoverable Coal Resource Area (KRCRA), has been altered to include the area containing mineable coal as defined by the Department of the Interior. The Forest cannot control coal production so the 15 million ton limit has been eliminated. The Forest has identified thresholds as Standards and Guidelines in the Forest Plan, and used these as Multiple Use Criteria in evaluating land suitable for coal leasing. See Appendix C.

All Forest surface resources must be protected in considering new areas for leasing and mining.

The Forest Plan contains stipulations or mitigation statements for mineral exploration, leasing development, and mining. These are shown in Appendix B.

The use of uranium is predicted to increase substantially during the mid 1990's, so most operators will continue to maintain their rights through assessment work. The Forest's interests must be protected while this work is done.

The Forest Plan contains stipulations or mitigation statements for mineral exploration, leasing development, and mining. These are shown Appendix B.

During this planning period, oil and gas leasing, exploration, and development is expected to increase and surface resources must be protected.

The Forest Plan contains stipulations or mitigation statements for mineral exploration, leasing development, and mining. These are shown in Appendix B.

RECREATION

Most campground and picnic facilities are approaching the end of their useful life and many need immediate replacement. Some new developed areas may be needed.

The recreation program schedules reconstruction of facilities that might affect public health and/or safety during this 10 year planning period. New developments are scheduled after the first 10 year period owing to the funding constraint. Some deterioration in facilities may occur as a result of excessive use. There are no new developed areas planned in the first or second planning periods.

Camping, picnicking, and associated recreation activities outside developed sites at times conflict with the production of range forage, wildlife habitat, and clean water.

Areas receiving heavy use for dispersed recreation have been identified and direction prepared to provide guidance in administering the use of these areas. This should reduce conflicts and maintain the quality of recreation opportunity.

Increased snowmobiling and cross country skiing have demonstrated a need for allocating areas to each form of winter recreation.

Forest-wide Direction provides for the assignment of some areas to motorized and other areas to nonmotorized recreation use. This has been done and provides some separation for snowmobiles and cross country skiers. As the conflict increases, additional separation and administration may be needed and the Plan provides for this action.

Demands for solitude and vehicular travel use conflict, making it necessary to allocate areas to both nonmotorized and motorized use in semiprimitive recreation areas.

Through Forest planning, areas have been identified where semiprimitive recreation opportunities will be provided. Within these areas and others, an additional separation has been made so that some areas are available for motorized use, while others are only available for nonmotorized use.

WILDERNESS

The lands within the Manti-LaSal National Forest have been intensively used by man, and areas available, capable, and suitable for wilderness are becoming scarce. If future generations are to enjoy wilderness, then some areas must be identified and protected.

The Utah Wilderness Bill established the 45,000 acre Dark Canyon Wilderness. This is believed to be adequate for this planning period.

ARCHEOLOGY AND HISTORY

While archeologic and historic sites are generally protected from abuse by man, natural elements are causing significant loss to these values. If future generations are to enjoy or study these values, then important sites must be identified, protected, and in some cases displayed.

Archeological, historical, and paleontological site management is defined in Forest-wide Direction. Direction, Standards and Guidelines provide for the protection of these resources during design or implementation of other resource activities, and to develop interpretive sites as appropriate.

WILDLIFE

Habitat for deer and elk is limited.

Winter habitat for deer and elk is limited on the Manti and San Pitch Divisions. Summer range may be a limiting factor on the LaSal Division. Management Unit Requirements for key and general wildlife habitat have been prepared and certain areas have been assigned to this management emphasis.

Demands for wildlife hunting or viewing will increase with population.

The productive capability of wildlife habitat is limited and cannot meet the projected demands for hunting.

As National Forest System lands are more intensively used for minerals, recreation, and other activities, coordination with wildlife needs will become more critical to the maintenance of wildlife populations and habitat.

Management Unit Requirements provide for protecting wildlife habitat so that minimum viable populations can be maintained for all animals, and populations of high interest species can be increased.

Coordination is required to protect threatened and endangered species.

The Forest-wide Direction requires continued coordination with appropriate agencies on threatened and endangered species.

WATERSHED

Demand for water exceeds supply and demands are increasing. Watersheds on the Forest need to be protected and where possible water quality should be improved.

The Forest cannot meet the demands for water quantity. Management Unit Requirements have been prepared to improve or maintain water quality.

About 46,000 acres have been identified as needing treatment to restore deteriorated watershed, improve water quality, and reduce downstream damage from excessive sediment.

A program for treating deteriorated watersheds has been prepared. It will not be completed within the period allocated in the RPA Program for eliminating this backlog because of financial constraints.

FACILITIES

Many roads and trails show the effects of heavy or long use and little maintenance. The surfacing is gone and drainage facilities are deteriorated.

A facilities management program has been designed to maintain system facilities at a level appropriate to their value. Temporary and permanent closures will be used to protect low standard roads during periods when use could cause significant damage. A modest facility improvement program has been defined. Much of the facility improvement program will be delayed until the second 10-year period, due to funding constraints.

The transportation system needs to be evaluated to assure that it provides the needed access for the proposed resource uses. Once this is done, a construction and maintenance program could be developed to provide adequate access for Forest users.

A program to evaluate existing roads against their perceived need has been scheduled.

SOCIO-ECONOMIC

Local community economics are shifting from an agricultural base toward a more industrial economy. This changes lifestyles, raises the general economic level, and increases need for community services. The shift is primarily based on mining activities. If mining slows, accelerated Forest investment work could be used to counteract rapid changes in employment and thereby help maintain community stability.

Financial constraints during this 10-year period make it impossible to accelerate Forest investment work to counteract rapid changes in employment and maintain community stability.

CHAPTER III

MANAGEMENT DIRECTION



CHAPTER III

MANAGEMENT DIRECTION

Implementation

This chapter of the Forest Plan provides the long-range management direction for the Forest. The direction responds to public issues, management concerns, and management opportunities. The direction is within the capability, availability, and suitability objectives for the land and resources.

As soon as practicable after the Forest Plan is approved, the Forest Supervisor will ensure that, subject to valid existing rights, all outstanding and future permits and other occupancy and use documents which affect National Forest System lands are consistent with the Forest Plan. The management direction contained in the Forest Plan is used in analyzing proposals by prospective Forest users. All permits, contracts, and other instruments for occupancy and use of National Forest System lands covered by this Forest Plan must be consistent with the Management Requirements in both the Forest-wide Direction and Management Unit Requirements sections. This is required by 16 USC 1604(i) and 36 CFR 219.10(e).

Subsequent administrative activities affecting National Forest System lands, including budget proposals, shall be based on the Forest Plan. The Forest Supervisor may change proposed implementation schedules to reflect differences between proposed annual budgets and actual funds received. Schedule changes resulting from the budget appropriation process will be considered an amendment to the Forest Plan. The final annual budget allocation for the Forest will serve as amendment documentation. Changes resulting from the budget appropriation process shall not be considered a significant amendment, and will not require the preparation of an environmental impact statement. Budget changes, which over time significantly alter the long-term relationships between levels of multiple-use goods and services projected in the Forest Plan, will be evaluated in conjunction with the RPA Program update every five years, and may result in a Forest Plan amendment or revision.

Implementation of this management direction is the key to translating the goals, objectives, and management requirements stated in the Forest Plan into on-the-ground results. The Forest Plan is implemented through the program development, budgeting, and annual work planning processes. These processes supplement the Forest Plan by making annual adjustments and changes needed to reflect current priorities within the overall Forest Plan Management Requirements.

The Forest Plan guides development of multi-year implementation programs for each Ranger District. The Forest Plan Management Requirements are translated into these multi-year program budget proposals which specifically identify the activities and expenditures necessary to achieve the direction provided by the Forest Plan. These implementation programs form the basis for the Forest's annual program budget.

Upon final budget appropriation approval for the Forest, the annual work program is finalized and implemented on-the-ground. The annual work plan provides the detail to the program budget proposals necessary to guide land managers and their staffs in responding to Forest Plan direction. The activity files in the data base and the Program Accounting and Management Attainment Reporting System provide information for monitoring the accomplishment of the annual Forest program.

Forest Management Goals

The following goals are concise statements describing a desired condition to be achieved some time in the future. They are expressed in broad general terms and are timeless in that they have no specific date by which they are to be completed. These goal statements are the principal basis for the objectives listed later in this chapter.

Vegetation

Certain vegetative types are to be managed such that varying successional stages will be present to provide for a high level of vegetative diversity and productivity.

Aspen is to be managed, with commercial or noncommercial treatments, with the goal of maintaining 13 percent of the Forest in the aspen type or increasing the aspen type toward the 19 percent it represented in 1915.

Recreation

Recognize the significance of recreation in proximity to population centers and national attractions.

Offer a broad range of dispersed and developed recreation opportunities by providing appropriate recreation experience and setting levels.

Provide the opportunity for developed recreation sites to be operated by public concessionaires.

Provide more cost-effective service.

Provide appropriate developed recreation capacity where demand exists and private sector cannot meet the demand.

Generally place priority on restoration of existing facilities presently below standards.

Maintain, enhance, and/or rehabilitate visual resources to the planned VQO.

Design interpretive service programs where it will help resolve management problems, reduce management costs, obtain visitor feedback, increase public understanding of Forest Service management, enhance visitor use, and provide safe use of the Forest.

Cultural, Historical, and Paleontological Resources

Locate and determine the significance of paleontological, historical, and archeological sites and, as appropriate, nominate sites to the National Register.

Manage selected historical and archeological sites for public use, while still protecting the values of the site.

Make select paleontological, historical and archeological sites available for study by agencies involved in research and education.

Protect from theft and/or vandalism cultural, historical, and paleontological resources.

Wilderness

Manage to protect the wilderness character.

Rehabilitate areas showing evidence of unacceptable physical and biological impacts of past use.

Increase visitor awareness and appreciation of wilderness values.

Wildlife and Fish

Maintain or improve habitat carrying capacity for elk and deer.

Maintain or improve wildlife habitat diversity.

Maintain or improve fisheries habitat.

Protect, maintain, and/or improve habitat for threatened or endangered and sensitive plants and animals.

Provide habitat for viable populations of the existing vertebrate and invertebrate species found on the Forest.

Cooperate with the State in keeping wildlife populations within the habitat capacity.

Range

Bring livestock obligation in line with rangeland carrying capacity.

Maintain upward or stable trends in vegetation and soil condition.

Invest in range improvements where they will provide the greatest benefit.

Control noxious weeds and poisonous plants in cooperation with Forest users and State and local agencies.

Timber

Provide commercial timber sales of sufficient quantity and quality to maintain local timber industry and accomplish desired vegetation treatment goals.

Meet as much of the demand for wood fiber and Forest products as possible, consistent with multiple-use objectives.

Provide a stable supply of fuelwood opportunities.

Ensure that programmed reforestation is kept current.

Maintain a healthy Forest by applying appropriate silvicultural treatments.

Manage aspen stands for forage as well as wood fiber.

Provide wood products usage in the management of pinyon-juniper and oak stands.

Use timber management to meet other management or resource needs.

Soil and Water

Maintain satisfactory watershed conditions.

Provide favorable conditions of water flow (quality, quantity, and timing).

Protect National Forest System lands or resources from unacceptable damage caused by the development of water uses.

Improve deteriorated watershed conditions where feasible.

Provide sufficient water for multiple-use management by securing favorable flows of water, which is interpreted to include those flows necessary to maintain stable and efficient stream channels as required by the Organic Act of 1897, and provide for fish and wildlife habitat, recreation, and livestock use as required by the Multiple Use Act of 1960.

Protect soil and water productivity so that neither will be significantly or permanently impaired.

Protect and enhance riparian areas including dependent resources.

Minerals and Geology

Provide for the interpretation of surface and subsurface geologic conditions and processes such as landsliding.

Manage geologic resources, common variety minerals, ground water, and underground spaces (surficial deposits, bedrocks, structures, and processes) to meet resource needs and minimize adverse effects.

Provide appropriate opportunities for and manage activities related to locating, leasing, exploration, development, and production of mineral and energy resources.

Ensure that adequate reclamation of disturbed areas is accomplished.

Lands

Exchange lands and consolidate ownership when in the public interest.

Acquire necessary rights-of-way to facilitate public access to National Forest System lands and to meet resource management objectives.

Acquire scenic or partial easements wherever Federal ownership is not required to meet management objectives.

Locate, identify, and mark National Forest property lines and protect land survey monuments.

Consider special-use applications and permits on the basis of relative benefit to the public and individual need.

Protection

Promote an integrated pest management program to prevent and control insect and disease infestations.

Minimize hazards from flood, wind, wildfire, and erosion.

Reduce the accumulated fuels to a tolerable risk level.

Suppress wildfire based on values, risk, and management unit prescriptions.

Manage Forest activities so that air quality is compatible with Federal and State standards.

Human and Community Development

Provide the opportunity for human resource programs that assist the disadvantaged with resource use and employment opportunities.

Charge "use fees" for products and services to provide the highest return consistent with maintaining and encouraging existing local operations and attaining goals of the management units.

Provide opportunities for public participation in the evaluation of proposed Forest activities.

Provide work opportunities and training experiences to accomplish resource objectives and to assist communities.

Within the Forest's capability, provide the opportunity for sustained economic growth of industries and communities dependent upon Forest outputs.

Facilities

Manage the transportation system to safely and economically transport people, products, and services to accomplish planned management unit programs and goals.

Manage the transportation system for increased cost-effectiveness and efficiency.

Provide for energy efficiency in structure and equipment management.

Maintain facilities at a level that protects investments in the facility and adjacent resources.

Manage to provide public (user) health and safety.

Reduce total road miles while emphasizing improvement on remaining miles.

Locate facilities so as to minimize travel while efficiently accomplishing long-range management unit programs and goals.

Research, Protection, and Interpretation Units

Manage special interest areas to protect the unique archeological, ecological, geological, paleontological, historical, and other special characteristics for long-term public benefit.

Preserve in as near as natural condition as possible areas or features of unique natural phenomenon.

Resource Supply, Demand, and Proposed Production Summary

The outputs listed in Table III-1 are concise, time-specific, measurable results that respond to the goals listed in Chapter III. These objectives are the basis for the Management Requirements listed in the Forest-wide Direction and Management Unit Requirements in this chapter. Projected outputs and returns to the U.S. Treasury are contingent on the accuracy of assumptions used in developing the predictions including the projected funding needed.

TABLE III-1

<u>Outputs</u>	OUTPUTS AND BENEFITS		
	<u>Period 1</u> <u>(1986-1995)</u>	<u>Period 2</u> <u>(1996-2005)</u>	<u>Period 3</u> <u>(2006-2035)</u>
Capacity MAUM's	153.8	160.0	163.5
Deer MWFUD's	37.9	54.5	61.1
Elk MWFUD's	3.2	6.5	7.6
Fish MWFUD's	79.9	90.5	107.8
Timber MMEF	5.2	8.3	11.7
Fuelwood M-Cord	11.2	16.4	21.3
Primitive MRVD's	6.3	10.0	17.2
SPNM MRVD's	25.9	34.2	50.2
SPM MRVD's	167.8	227.6	329.4
RNA MRVD's	757.6	1,006.2	1,456.0
Rural MRVD's	338.8	436.3	632.2
Uranium M-T/Ore	58.4	95.7	53.8
Gold M-T/Ore	1.2	4.8	2.7
Coal MM Tons	11.3	17.8	25.0
Water M-Ac/Ft	731.0	731.0	733.1
Sediment M-Tons	490.0	30.0	5.0
<u>Benefits M\$</u>			
Recreation	3,920.0	5,194.0	7,542.0
Wildlife	5,055.0	6,808.0	7,828.0
Range	2,115.0	2,200.0	2,248.0
Timber	428.0	509.0	570.0
Minerals	41,530.0	65,880.0	91,496.0
Water	41,328.0	42,607.0	42,793.0
Total Benefits	94,376.0	123,198.0	152,477.0
<u>Returns to Treasury M\$</u>	28,524.0	44,610.0	62,744.0

Table III-2 displays the projected costs. The projected total plan cost level associated with each time period is the amount necessary to implement the Forest Plan direction and achieve multiple-use objectives. The annual budget, as authorized by Congress, may be different from that necessary to carry out the intent of the Forest Plan. For that reason, short-range objectives must be flexible to accommodate the variation. The long-range objectives must be used to guide the development of the annual budget request to ensure completion of Forest Plan direction.

TABLE III-2

COSTS BY FUNDING ELEMENTS
(In Thousand 1982 Value Dollars)

		Periods		
Resource Elements		'86 - '95	'96 - '05	'06 - '35
Operation and Maintenance	Recreation	732.0	759.8	786.3
	Wilderness	47.0	55.9	71.2
	Wildlife	224.1	243.6	253.9
	Range	455.1	413.3	419.1
	Timber	542.8	554.2	577.1
	Soil and Water	283.7	111.2	115.9
	Minerals	611.7	632.6	607.4
	Human	5.7	8.9	9.3
	Lands	95.9	958.5	968.1
	Facilities	437.2	444.0	413.4
	Protection	217.0	211.2	216.8
	TOTAL	3,652.3	4,393.1	4,438.4
Investments	Recreation	294.2	247.2	247.2
	Wilderness	12.4	11.8	11.8
	Wildlife	539.2	36.2	36.2
	Range	115.7	119.1	119.1
	Timber	79.7	75.4	75.4
	Soil and Water	238.3	209.1	209.1
	Minerals	.0	.0	.0
	Human	.0	.0	.0
	Lands	.0	.0	.0
	Facilities	590.9	409.8	409.8
	Protection	24.0	.0	.0
	TOTAL	1,894.4	1,108.5	1,108.5
Total by Resource Element	Recreation	1,026.3	1,006.9	1,033.5
	Wilderness	59.4	67.7	83.0
	Wildlife	763.3	279.8	290.1
	Range	570.9	532.3	538.1
	Timber	622.5	629.6	652.4
	Soil and Water	522.0	320.3	325.0
	Minerals	611.7	632.6	607.4
	Human	5.7	8.9	9.3
	Lands	95.9	958.5	968.1
	Facilities	1,028.1	853.8	823.2
	Protection	241.0	211.2	216.8
General Administration		986.0	1,126.0	1,162.4
Grand Total		6,532.0	6,627.0	6,709.4

The first 10-year period shown on the tables, 1986 to 1995, is the planning period. Outputs in the second and third periods are projections out to the planning horizon, 2035, as required by RPA, and show the effects in out-years if a particular course of action is taken.

Desired Future Condition of the Forest

This section is a description of the desired future condition of the Forest resulting from implementation of this Forest Plan (the High Benefit Alternative described in the accompanying EIS).

Vegetation

ASPEN

The aspen vegetative type would be managed and maintained in a condition of high productivity. Silvicultural practices treating total clones would generally be utilized resulting in the aspen type appearing as even-aged stands, but with stands in all age classes throughout the Forest.

ENGELMANN SPRUCE - ALPINE FIR

Approximately 25 percent of this type is suitable for intensive management through commercial timber and wood product sales. Harvesting utilizing shelterwood or modified shelterwood systems would occur where slope stability would not be affected and where the practice would enhance vegetation diversity as well as improve wildlife habitat. The number of fir stands would be diminished as a result of some stands being converted back to aspen.

PONDEROSA PINE

Approximately 50 percent of the type is suitable for intensive management using commercial timber and wood product sales. Silvicultural practices used would emphasize the high productivity of this type while considering range, wildlife, and recreational uses and values.

PINYON-JUNIPER

Pinyon-juniper stands (about 10 percent of the total) on gentle slopes and on lands with good soils will be treated periodically to maintain early successional stages. This will help provide vegetation, scenic, and habitat, as well as forage and improved watershed. Pinyon-juniper stands (about 90 percent of the total) on steeper slopes and on lands with poor or rocky soils will be extensively managed and generally not treated except by natural disturbances.

RIPARIAN

Vegetative cover within the riparian component ecosystems would be maintained or diversified and enhanced as necessary to emphasize watershed, wildlife, and fisheries values. The stage of vegetative development may be locally altered to increase riparian and/or aquatic ecosystems.

SUBALPINE FORB GRASSLAND

The subalpine forb grassland would include a diverse mixture of native and desirable introduced high forage producing plant species. Management would maintain this complex in a healthy, vigorous condition to preclude invasion by less desirable species.

GAMBEL OAK AND MOUNTAIN SHRUB TYPES

Intensive management practices would maintain structural diversity within the woody species in at least 25 percent of the area covered by the Gambel oak and Mountain shrub type. Vegetative diversity within the grass and forb ground cover would also be improved. In some cases, the Gambel oak would be encouraged to successional develop as an open savannah or in a high seral stage.

Developed Recreation

Recreation visitor use would be distributed between developed recreation facilities on individual and adjacent Ranger Districts. Use would also be distributed between government agency and privately-owned and/or operated facilities. Still, some individual developed recreation sites could be overcrowded during peak use periods.

Developed recreation sites would be operated at a reduced service level during the pre- and post-summer use period. During the summer use period, high use fee sites comprising approximately 50 percent of the total Forest site capacity would be managed at the full service level and the remainder at the reduced service level. Sites adjacent to private resorts, easy accessible destination use sites, and some sites near towns or cities could be operated and maintained by private concessionaires.

Existing campgrounds and picnic grounds would be rehabilitated and/or expanded where the private sector would not satisfy the demand. An average of 20 persons-at-one-time (PAOT) capacity would be constructed annually over the 50 year planning horizon to satisfy picnic ground and overnight campground demand. The condition of high use fee recreation facilities would be improved to condition class one or two. The vegetative condition including riparian areas would be maintained or improved.

Summer home residences on National Forest System lands would be fewer because isolated special use permits for this use are non-transferable.

Private sector resort demand would reach capacity between the years 1990 and 2000. The majority of any new capacity would be provided by the private sector off Forest or on private lands within the Forest boundary.

High quality winter recreation opportunities would be provided, generally by the private sector, on sites suitable to this use.

Dispersed Recreation

A range of dispersed recreation opportunities would be provided on National Forest System lands. Each activity would be managed to maintain or enhance appropriate opportunities.

When a greater public need, such as timber harvest or mineral extraction would be determined by the Forest Supervisor, any dispersed recreation area not formally withdrawn from such activity could be impacted. However, after the operation ceased, the area would be reclaimed or rehabilitated consistent with the pre-project recreation opportunity classification goals.

Cultural, Historical, and Paleontological Resources

Cultural, historical, and paleontological resources would be protected from resource disturbing activities and vandalism. Exceptional suitable sites should be interpreted and made available for general public viewing and, as appropriate, nominated to the National Register.

Wilderness

The Dark Canyon Wilderness would be managed to protect its wilderness character for present and future use and enjoyment. Livestock grazing on suitable range would continue within compatible use levels and schedule.

On remaining National Forest System lands, protection of wilderness values would be a function of the demands for land use, activity design, and reclamation work required upon project completion.

Wildlife and Fish

Appropriate habitat management would maintain viable populations of existing vertebrate species.

Habitats of threatened and endangered species would be maintained. Habitat would be surveyed and appropriate action taken. Habitats for sensitive species would be managed to reduce the potential of these species becoming threatened or endangered.

Flood damaged fisheries habitat could significantly improve as a result of the flood damage repair program in conjunction with watershed activities. In other areas, the fisheries habitat would gradually increase by improving habitat in suitable marginal and unsuitable lakes and reservoirs, and completing stream and riparian improvement projects. Riparian habitat could be maintained and its condition improved.

Big-game winter range capacity could be maintained through direct habitat improvement which could offset encroachment by other activities. Increased emphasis would be given to non-game habitat and non-consumptive wildlife uses.

Populations of deer and elk would increase over current levels. Management Indicator Species (MIS) habitat would be maintained at levels that meet or exceed requirements for minimum viable populations.

Range

Grazing capacity would be increased by the end of the first decade, and actual use and permitted use would be in balance with the projected grazing capacity. This could involve some reduction of permit obligations depending on the allotment. During the planning period, range condition and trend should gradually improve. Thus, grazing capacity and use should increase to exceed present levels.

Allotment management plans would be completed. These plans would include goals and objectives, with management efforts to provide coordination and improvement of the range resource.

The noxious weed program would continue in coordination with local weed control districts with the aim of controlling existing infestations and preventing establishment of new ones. Special attention would be given to the control of musk thistle on the Forest. Integrated pest management techniques would be used to protect, maintain, and improve range conditions. Predator control should be allowed on grazing allotments where a need is demonstrated.

Some treated watershed areas closed to grazing would remain closed. However, some treated areas capable of supporting grazing, would be opened for this use.

Endangered, threatened, and sensitive plant species populations and their habitats would be maintained and improved. Land disturbing activities would be reviewed for endangered, threatened, and sensitive plant species and clearance would be made before the projects are approved, thus, providing the safeguards needed for their protection and continued existence.

Timber

Areas available for timber harvest would generally include slopes less than 40 percent.

A combination of silvicultural harvest systems that maximize positive present net value would generally be used. Intensive management practices, such as precommercial thinning, would be used in commercial working groups. Harvest of the high and medium bark-beetle-susceptible ponderosa pine stands would be emphasized. A harvest based on allowable sale quantity should be maintained annually in the ponderosa pine and spruce-fir working groups.

The future condition of the commercial stands would improve, conversion of slow-growing, over-mature stands to younger, more vigorous stands, and by periodic reentry to maintain stand vigor. Insect and disease impacts would be less than present because of the emphasis on harvesting susceptible stands.

Non-commercial stands would be managed to provide other resource outputs, thus, there would be some loss of wood or wood products, and growth rates could be substantially lower.

The supply of firewood created by this alternative, when added to existing dead timber, should meet the demand through 2030.

Soil and Water

Water quality and soil productivity would be maintained or improved. Flood damage repair programs in conjunction with fisheries improvement would result in improved conditions of damaged streams. Other identified watershed improvement needs would be completed at a reasonable rate throughout the planning period, which would reduce soil erosion and stream sedimentation. Future resource uses or activities would be executed so as to minimize impacts to soil and water quality. Improved grazing systems would better protect riparian areas and improve water quality. Reconstructing eroding portions of roads and trails will improve water quality. Protection from damage due to vehicular travel would increase through law enforcement and public education. The soil and water resource inventory and monitoring would be used in activity design and implementation. Water uses and needs including instream flows would be claimed through the State adjudication process. Increases in water yield due to aspen harvest could be less than one percent of current yield, and 95 percent of the increase would be in the Colorado River Basin.

Minerals

COAL

Proposed coal lease tracts would be identified based on expressions of interest from coal development companies. Leasing would be considered and cleared, eliminated, or delayed for tracts within the Coal Development Potential Area that have been determined to be available for coal leasing based on application of the coal lease unsuitability criteria and multiple-use management decisions.

Cleared tracts would be available for leasing subject to the mitigating requirements determined through multiple-use management and environmental assessments.

New mines would be expected to develop on existing as well as new leases and coal production would increase.

Coal exploration, including new exploration of potential lease areas and obtaining additional geologic data for existing mining operations, would increase proportionately with new leasing and increased production.

Subsidence and the resource monitoring programs, required for approval of mine plans, would provide the necessary data to create models for predicting subsidence and the related impacts for evaluating future leases and/or mining operations.

OIL AND GAS

Oil and gas leases would be issued except in the Dark Canyon Wilderness Area. Leases would contain necessary stipulations to minimize or eliminate adverse impacts on other resources and resource uses that could be caused by exploration and development.

Lease exploration and development activities would be evaluated on a case-by-case basis. Recommendations for project approval would be developed through site-specific environmental analyses.

LOCATABLE MINERALS

Areas not withdrawn from locatable mineral location would be open and available for prospecting and development of mining claims. However, locatable mineral withdrawals and the Dark Canyon Wilderness Area would be subject to valid rights.

Surface disturbing mining claim exploration and development activities would be evaluated and approved subject to site-specific environmental analyses.

COMMON VARIETY MINERALS

Common variety minerals would be developed and disposed of based on need and site-specific environmental analyses.

GEOPHYSICAL AND GEOCHEMICAL EXPLORATION

Geophysical and geochemical exploration proposals for geologic and mineral exploration would be evaluated by site-specific environmental analyses, and approved with appropriate stipulations, or denied.

Research, Protection, and Interpretation Units

Research Natural Areas, Botanical Areas, and other Special Interest Areas would be established so that future generations will have the opportunity to study or view the notable and/or unique physical, biological, paleontological, cultural, and historical values of the Forest.

Lands

Lands would be acquired, transferred, and exchanged as available to block lands into more manageable configurations and eliminate small isolated tracts. Several programs involving the Forest Service, Department of Interior, and the States of Utah and Colorado have been initiated for this purpose, and some would be consummated.

Utilities and other special uses would be considered in suitable areas and/or corridors based on need and overall benefit. The need and number of special-use permits issues is expected to increase proportional to population growth, expansion of industry, and the demand for natural resources, especially energy minerals.

Special-use permits for isolated cabins would be phased out as permits expire under existing terms.

Current land withdrawals are to be reevaluated by 1991 as required by Section 204(1) of the Federal Land Policy and Management Act of 1976 (FLPMA). It is expected that the total area under withdrawals may increase since some new areas may be withdrawn to protect specific special interest and high investment areas.

Special-use fee returns would increase.

Exterior Forest boundaries and interior State and private land boundaries would be identified and marked on the ground by the end of the year 2035.

Fire

Appropriate suppression response would be taken on wildfires as provided in the general Forest Direction and specific Management Unit Requirements.

Prescribed fire from planned or unplanned ignitions would be used for fuels treatment and resource improvement. Prescribed burning would be used if justified by an environmental analysis. Manipulation of vegetation could provide adequate fuels reduction.

In the Dark Canyon Wilderness, prescribed unplanned ignitions could be used to maintain natural ecosystems.

Law Enforcement

Cooperative law enforcement agreements with local law enforcement agencies would continue. Increased public use of the Forest would increase the law enforcement problem, and greater protection efforts would be needed.

Facilities

TRANSPORTATION

The transportation system would be safe, functional, economical, and environmentally acceptable. Road construction, reconstruction, surfacing, operation and maintenance for coal, gas, oil, and uranium exploration, development and production would be coordinated with other resource activities.

The basic arterial and collector, as well as the local system serving major rural recreation sites, would be reconstructed, reconditioned, and/or surfaced, and then maintained to carry passenger traffic at level 3 or higher maintenance for the intended season of use. This reconstruction and 20 percent of the surfacing placement should occur in the first 10 years. The remainder of the surfacing should be placed in the second 10 years.

The remainder of the local system would be evaluated and substandard roads rebuilt to standard or abandoned as determined in the road management program. Management of local roads would include intermittent restrictions of road use, vehicle type or loading restrictions, and weather restrictions as necessary to maximize access while minimizing maintenance costs, roadway damage, and environmental damage. Local unrestricted roads would be travelable by high clearance vehicles at level 2 for the intended season of use. Reconstruction of the local system would occur during the second 10 year period, except where required for timber or mineral access. This could occur in the first 10 year period.

After the first 20 years, road construction would consist of that necessary for support of timber and some mineral activities, mostly temporary roads. In conjunction with maintenance activities, an ongoing surface replacement program of 29 miles per year would be required.

BUILDINGS AND ADMINISTRATIVE SITES

Major health and safety problems would be resolved so that unrestricted use can occur by the end of the first 10 year period. Less severe health and safety problems would be resolved so that unrestricted use can occur by the end of the second 10 year period. Further, major work centers would have space adequate to serve administrative needs. Reconstruction and major maintenance not related to health and safety would be completed during the third 10 year period, and as other space requirements are fulfilled.

Management Requirements

The Management Requirements document the controls that must be maintained to accomplish the goals and objectives of this Forest Plan. They define the environmental quality requirements, natural and depletable resource requirements, and mitigating measures. The Forest-wide Direction Section applies to all areas of the Forest unless specifically amended by a Management Requirement for a Management Unit.

Management Requirements are presented in three columns: Management Activities, General Direction, and Standards and Guidelines.

Management Activities are work processes that are conducted to produce, enhance, or maintain levels of outputs, or to achieve administrative and environmental quality objectives. Management Activities are identified by code number and title defined in the Management Information Handbook (FSH 1309.11) dated July 1980. In some cases, Management Activities were grouped under one activity when it was not appropriate to develop separate requirements. National Forest System lands will be managed to comply with laws, regulations, Executive Orders, Forest Service Manual, and acceptable work standards.

General Direction Statements specify the actions, measures, or treatments (management practices) to be done when implementing the Management Activity or the condition expected to exist after the General Direction is implemented.

Standards and Guidelines are quantifications of the acceptable limits within which the General Direction is implemented.

Forest-wide Direction

The following section contains the direction Standards and Guidelines for managing the entire Forest, unless specifically amended by the requirements for a management unit.

MANAGEMENT
ACTIVITIES

GENERAL
DIRECTION

STANDARDS &
GUIDELINES

CULTURAL
RESOURCE
MANAGEMENT
(A02)

- | | | |
|----|---|--|
| 01 | Protect, find an adaptive use for, and or interpret cultural and paleontologic resources on National Forest System (NFS) lands which are listed on the National Register of Historic Places the National Register of Historic Landmarks, or may be determined to be eligible for the national registers. | a. 36 CFR 800.4, 36 CFR 296, & FSM 2360 |
| 02 | <p>Nominate or recommend cultural or paleontological sites to the National Register of Historic Places or National Natural Landmarks in the following priority:</p> <ul style="list-style-type: none"> A. Sites representing multiple themes; B. Sites representing themes which are not currently on The National Register within the State; or C. Sites representing themes which are currently represented by single sites. | a. 36 CFR 60, 35 CFR 63, & FSM 2360 |
| 03 | <p>Protect and foster public use and enjoyment of cultural and paleontological resources:</p> <ul style="list-style-type: none"> A. Conduct appropriate studies to provide information necessary for an adequate review of the effect a proposed undertaking may have on cultural values. B. Give adequate consideration of modifications or alterations to proposed undertakings that could avoid, mitigate, or minimize adverse effects. C. Collect and record information from sites where appropriate. D. Issue antiquities permits to qualifying academic institutions or other approved organizations for the study and research of sites. E. Interpret sites as appropriate, and foster public appreciation of these resources. | a. 36 CFR 800.4 |
| 04 | Use a predictive model to determine areas of high and low potential for cultural resources. Design site-specific survey requirements in various areas on the basis of the predictive model, after appropriate review and approval (including SHPO). | a. Predictive models can only be used where a cultural resource overview has been completed. |

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
VISUAL RESOURCE MANAGEMENT (A04)	<p>01 Forest resource uses or activities should meet the adopted VQO as displayed on the Planned Visual Quality Objective Map (reduced copy in Appendix F).</p> <p>02 Design and implement management activities to blend with the natural landscape.</p> <p>03 Rehabilitate existing projects and areas which do not meet the adopted Visual Quality Objective(s) (VQO) specified for each management unit. Set priorities for rehabilitation, considering the following:</p> <ul style="list-style-type: none"> A. Relative importance of the site and amount of deviation from adopted VQO. Foreground areas have highest priority; B. Length of time it will take natural processes to reduce the visual impacts so that they meet the adopted VQO; C. Length of time it will take rehabilitation measures to meet the adopted VQO; and D. Benefits to other resource management objectives gained through rehabilitation. <p>04 Achieve landscape enhancement through addition, deletion or alteration of landscape elements. Examples of these include:</p> <ul style="list-style-type: none"> A. Addition of vegetation species to introduce unique form, color or texture to existing vegetation. B. Vegetation manipulation to open up vistas or screen out undesirable views. 	<p>a. FSM 2380 and 2309.16 through FSH 2309.25.</p> <p>a. FSM 2380</p> <p>a. FSM 2380</p>
MANAGEMENT OF DEVELOPED RECREATION SITES (A08, 09, 11 & 13)	01 Manage sites identified for developed recreation during the planning period under the Developed Recreation Site (DRS) management unit prescription.	
DISPERSED RECREATION MANAGEMENT (A14 AND 15)	01 Describe, as appropriate, high interest or unique geological, paleontological, biological, archeological, or historical features for public information and, as appropriate, develop interpretive information for these sites.	

MANAGEMENT
ACTIVITIES

GENERAL
DIRECTION

STANDARDS &
GUIDELINES

CONTINUATION OF:
DISPERSED
RECREATION
MANAGEMENT
(A14 AND 15)

02 Provide opportunities for roaded natural appearing, semiprimitive motorized, and semiprimitive nonmotorized recreation uses.

03 Classify areas as to whether vehicular travel use is restricted.

04 Restrict use and/or rehabilitate dispersed sites where unacceptable environmental damage is occurring.

05 Limit camping near lakes and streams or in watersheds as necessary to protect riparian and aquatic ecosystems and to maintain the quality of the recreation experience.

06 Preclude camping in undeveloped sites within one quarter mile of developed fee sites, where it is appropriate.

07 Manage dispersed recreation activities and use of trails in dispersed areas to not exceed the established PAOT/acre or mile of site or trail capacity.

a. Specify vehicular travels restrictions, if any, based on vehicle travel use management (FSM 2350).

a. Close sites that cannot be maintained in Code-A-Site categories light, moderate, or heavy campsite condition. (USDA FS Research Paper PNW-209, date 1976).

b. Rehabilitate sites that are in Code-A-Site category "extreme".

a. Maximum use and capacity levels are by: Recreation use and capacity range during the snow-free period (PAOT/acre): and, Forest Development Trail use and capacity range (PAOT/mile) of trail:

ROS Class	Capacity Range			
	Very Low	Low	Moderate	High
Semiprimitive Nonmotorized or Motorized;				
On Trails PAOT/mile....	2.0	3.0	9.0	11.0
Area-Wide PAOT/acre....	.004	.008	.05	.08
Roaded Natural;				
On Trails PAOT/mile....	based on trail design capacity			
Area-Wide PAOT/acre....	.04	.08	1.2	2.5
Rural;				
On Trails PAOT/mile....	based on trail design capacity			
Area-Wide PAOT/acre....	.5	.8	5.0	7.0

FOREST-WIDE DIRECTION

MANAGEMENT
ACTIVITIES

GENERAL
DIRECTION

STANDARDS &
GUIDELINES

CONTINUATION OF:
DISPERSED
RECREATION
MANAGEMENT
(A14 AND 15)

Adjust the above use level coefficients as needed to reflect usable acres, patterns of use, and general attractiveness of the specific management unit type as described in the ROS User's Guide. Reduce the above use levels where unacceptable changes to the biophysical resources will occur.

RECREATION
MANAGEMENT
(PRIVATE AND
OTHER PUBLIC
SECTOR)
(A16)

- 01 Ensure that permitted private and public sector sites on National Forest System lands which are adjacent to, or provide an access point into The Dark Canyon Wilderness, complement wilderness management objectives.
- 02 Act on special-use applications according to the following priorities:
 - A. Public Service operations catering to the general public.
 - B. Group type operations.
 - C. Private type operations.

- a. FSM 2340 and FSM 2720.
- b. An application for permit may be denied if the authorizing officer determines that:
 - (1) The proposed use would be inconsistent or incompatible with the purpose(s) for which the lands are managed, or with other uses, or
 - (2) The proposed use would not be in the public interest, or
 - (3) The applicant is not qualified, or
 - (4) The use would be inconsistent with applicable Federal and/or State laws, or
 - (5) The applicant does not or cannot demonstrate technical or financial capability.

WILDERNESS AREA
MANAGEMENT
(B02)

- 01 Manage Dark Canyon Wilderness Area under the management unit prescription for wilderness (DOW).

WILDLIFE AND
FISH RESOURCE
MANAGEMENT
(C01)

- 01 Provide habitat needs, as appropriate, for management indicator species.
 - A. Deer and Elk

- (1) Maintain adequate hiding cover around calving areas.
- (2) Optimum habitat mix for the daily normal range is 25 percent hiding cover, 15 percent thermal cover, 10 percent hiding or thermal cover and 50 percent foraging area.

FOREST-WIDE DIRECTION

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
CONTINUATION OF: WILDLIFE AND FISH RESOURCE MANAGEMENT (001)		<p>(3) In areas of historic water shortage during the dry season of the year develop water as appropriate.</p> <p>(4) Manage key deer and elk habitat so as to minimize disturbance during the period of use.</p>
B. Golden Eagle		(1) Avoid activities that could cause abandonment of active nests.
C. Blue Grouse		(1) Maintain and/or improve lands suitable for Blue Grouse to provide a mix of 10 percent breeding, 20 percent brood rearing, 40 percent feeding and 30 percent wintering.
D. Macroinvertebrates		(1) Improve to and maintain a good or above Diversity Index (DAT) of 11-17, a standing crop of 1.6 - 4.0, and a Biotic Condition Index (BCI) of 75 or above, based on analysis from R-4'S Aquatic Ecosystem Analysis Laboratory.
E. Abert Squirrel		<p>(1) *Habitat in ponderosa pine; Silvicultural prescriptions for ponderosa pine on the Monticello Ranger District should consider management that:</p> <p>(a) Protects habitat by maintaining occupied sites to produce good to very good habitat condition. This should include; 2 nest or feed trees 9-19" DBH, 1 feed tree 16" DBH, and 10 feed trees 9"+ DBH within 50 foot radius and 30 additional trees 9"+ DBH outside the 50 foot radius but within a 100 foot radius.</p>

MANAGEMENT
ACTIVITIES

GENERAL
DIRECTION

STANDARDS &
GUIDELINES

CONTINUATION OF:
WILDLIFE AND
FISH RESOURCE
MANAGEMENT
(001)

(b) Maintain and/or improve good (1 squirrel /10 acres) to very good (2-4/10 acres) habitat conditions on at least 60 percent of the total ponderosa pine habitat type. For every 5 to 10 acre tract, there could be; 2 nest or feed trees 9-19" DBH, 1 large feed tree 16"+ DBH, and 10 feed trees 9"+ DBH within 50 foot radius and 30 additional feed trees 9"+ DBH outside 50 foot but within 100 foot radius.

(c) Stands heavily diseased or insect infested would be considered on a site-by-site basis to determine improvement needs.

(2) Use slash and silvicultural practices that deter shrub growth, provide ponderosa pine reproduction, but do not encourage habitat for rodents that compete for Abert squirrel habitat components.

(3) Leave Gambel oak 6"+ DBH in association with ponderosa pine.

* Based on Wildlife Society Bulletin 12:408-44, 1984.

02 Manage habitat for recovery of endangered and threatened species.

a. Where activities or uses may impact T & E species or their habitats, initiate consultation procedures. Include the results of consultation in determining the viability of the activity or use.

03 Implement activities to meet the Forest's share of approved recovery plans.

04 Manage habitat of sensitive species to keep them from becoming threatened or endangered.

a. FSM 2670.

FOREST-WIDE DIRECTION

MANAGEMENT
ACTIVITIES

GENERAL
DIRECTION

STANDARDS &
GUIDELINES

CONTINUATION OF:
WILDLIFE AND
FISH RESOURCE
MANAGEMENT
(001)

05 Maintain and/or improve habitat and habitat diversity for minimum viable populations of existing vertebrate wildlife species.

a. Manage vegetative composition so as to maintain at least 50 percent of current (1980) habitat for existing and approved introduced wildlife species.

b. Maintain at least 5 percent of forested areas in mature timber stands.

06 Provide for habitat needs of cavity nesting birds, raptors, and small animals by:

- A. Through coordination with project work or resource uses, insure the appropriate density of snags are available and protected in vegetative types.
- B. Selecting and utilizing live trees to create snags.

a. A snag is defined as a completely or partially dead standing tree at least 4 inches DBH and at least 6 feet in height.

b. Maintain various size classes of standing snags with the approximate density per 100 acres based on broad vegetative types.

	<u>No./100 Acres</u>
(1) Ponderosa pine	110
(2) Mixed Conifer (Spruce/Fir/Douglas)	90
(3) Aspen	120
(4) Pinyon-Juniper	15
(5) Riparian	120

c. R-4 Supplement 26 to FSM 2631.

07 Manage down timber to provide habitat for wildlife.

a. Retain slash on at least 10 percent of timber stand areas and pinyon-juniper control projects.

b. Manage to provide at least two logs per acre in timber habitat types.

08 Manage waters capable of supporting self-sustaining fish populations to provide for those populations.

a. Manage stream habitat to at least 50 percent of potential where existing self-sustaining fisheries occur.

b. Proposed management activities which may cause unfavorable conditions in existing fisheries will include mitigation measures.

FOREST-WIDE DIRECTION

MANAGEMENT
ACTIVITIES

GENERAL
DIRECTION

STANDARDS &
GUIDELINES

WILDLIFE
HABITAT
IMPROVEMENT AND
MAINTENANCE
(002, 04, 05,
AND 06)

- 01 Maintain or improve habitat capability through direct treatment of vegetation, soil, and/or water.
- 02 Manage non-commercial aspen stands in mixed age groups to provide a source of forage.
- 03 Give wildlife funding priority to habitat improvement projects which are jointly or cooperatively funded with the states.
- 04 Use both commercial and non-commercial silvicultural practices to accomplish wildlife habitat objectives.
- 05 Maintain a medium to high edge contrast between tree stands created by even-aged management.

a. Contrast by age class, measured by H high, M medium, and L low, is:

Age Class	Age Class						
				S		S	
	O			S	G	H	R
	G	M	P	S	F	R	S
Old Growth. (OG).....	-	L	M	H	H	M	H
Mature. (M).....	L	-	M	M	H	M	H
Poles. (P).....	M	M	-	M	H	M	H
Shrub, Seedling, and Saplings. (SSS)...	H	M	M	-	L	L	L
Grass-Forbs. (GF).....	H	H	H	L	-	M	L
Shrubland. (SHR).....	M	M	M	L	M	-	M
Grassland. (GRS).....	H	H	H	L	L	M	-

- 06 Provide for conservation pools and, as appropriate, recreation facilities to meet resource protection needs in projects for new reservoir construction or reconstruction of existing reservoirs.

a. Conservation pools will be required where a potential exists for carry over fisheries and recreation use is appropriate.

WILDLIFE AND
FISH COOPERATION
WITH OTHER
AGENCIES
(C12)

- 01 Coordinate the animal damage control program with the State Wildlife Agencies, APHIS, other appropriate agencies, and cooperators to prevent or reduce other resource damage. Direct control toward preventing damage or removing the offending animal(s).

FOREST-WIDE DIRECTION

MANAGEMENT
ACTIVITIES

GENERAL
DIRECTION

STANDARDS &
GUIDELINES

CONTINUATION OF:
WILDLIFE AND
FISH COOPERATION
WITH OTHER
AGENCIES
(C12)

02 Consider wildlife transplants to suitable habitat when it is compatible with the management prescription for the unit(s) concerned.

03 Obtain a Memorandum of Understanding with the State(s) involved prior to allowing wildlife transplants.

a. R-4 Supplement to FSM 2611.

RANGE RESOURCE
MANAGEMENT
(D02)

01 Within the rangeland capability, provide forage to sustain the dependent livestock industry.

a. FSM 2203.1 Item 1.

02 Manage the range resource within its productive capabilities for grazing and browsing animals in harmony with other resources and activities to provide sustained yield and improvement of the forage resource. Encourage and coordinate other resource activities so as to maintain or enhance forage production.

a. Place allotments under an approved management plan.

b. Use Interdisciplinary teams to establish proper use criteria (R-4 Supplement No. 59 to FSM 2214.11).

03 Manage livestock and wild herbivores forage use by implementing proper use criteria as established in the Allotment Management Plan.

RANGE
IMPROVEMENT AND
MAINTENANCE
(D03, 04, 05
AND 06)

01 Provide structural and non-structural range improvements needed to maintain or improve range conditions as specified in allotment management plans.

a. Complete project effectiveness analysis to determine investment priorities (FSH 2209.11).

b. Construct and maintain structural improvements in accordance with Forest Service standards (FSH 2209.23).

c. Where site-specific developments adversely affect long-term production or management, those authorized to conduct activities will be required to replace losses through appropriate mitigations.

02 Perpetuate non-commercial aspen communities as a forage source.

MANAGEMENT
ACTIVITIES

GENERAL
DIRECTION

STANDARDS &
GUIDELINES

CONTINUATION OF:
RANGE
IMPROVEMENT AND
MAINTENANCE
(003, 04, 05
AND 06)

03 Control and reduce noxious weeds and poisonous plants, using integrated pest management techniques and strategies; including the use of herbicides, biological control agents, and/or mechanical or hand treatments.

a. Control spread first, and then work on established populations.

b. Apply herbicide treatments under the direction of certified applicators and following label instructions.

c. Those authorized to conduct soil disturbing activities will be required to control noxious weeds on the area disturbed during the life of the project.

TIMBER RESOURCE
MANAGEMENT
(E00)

01 Manage timberlands suitable for commercial harvest for timber or wood fiber production.

02 Provide for timber stand improvement, reforestation in sale area improvement plans, and wildlife habitat improvement.

a. Timber stands suitable for harvest;

(1) Produce 20 cu.ft. or more per acre per year.

(2) Are capable of being restocked within five years.

(3) Can be harvested within the General Direction, Standards and Guidelines for the site of the stand.

(4) Generally include ponderosa pine, mixed conifer, aspen, and spruce fir types, and rarely oak or pinon-juniper.

03 Manage timberlands not suitable for commercial harvest to maintain forest cover species, but emphasis should be on production of other forest resources and uses.

04 Require those authorized to conduct activities to replace losses through appropriate mitigations where a site-specific development adversely affects long-term production or management.

05 Use clearcuts as appropriate on any forest cover type with potential for impact, or impacted by insects or disease.

06 Coordinate timber and fuelwood programs to take advantage of roads constructed for other resource development or use.

FOREST-WIDE DIRECTION

MANAGEMENT
ACTIVITIES

GENERAL
DIRECTION

STANDARDS &
GUIDELINES

CONTINUATION OF:
TIMBER RESOURCE
MANAGEMENT
(B00)

07 Assure that even-aged conifer stands scheduled to be harvested during the planning period will generally have reached the culmination of mean annual increment of growth.

08 Make Christmas trees available in areas where Christmas tree culture or other resource objectives can be accomplished through commercial or personal use Christmas tree sales.

SILVICULTURAL
PRESCRIPTIONS
(E03, 06,
AND 07)

01 Combine appropriate management activities for the timber type to provide the acceptable range of management intensity for timber production.

MANAGEMENT ACTIVITY	TIMBER TYPE					
	SPRUCE- FIR	PONDEROSA PINE	DOUGLAS FIR	ASPEN	OTHER PINES	HARD- WOODS
TREE IMPROVEMENT	X	X	N	N	O	X
SITE PREPARATION	X	X	X	N	N	X
REFORESTATION:						
PLANTING	X	X	X	O	O	X
SEEDING	N	N	N	O	N	N
NATURAL	X	X	X	X	X	X
REGENERATION						
PROTECTION	X	X	X	N	N	X
STOCKING CONTROL (THINNING):						
PRECOMMERCIAL	X	X	X	N	N	X
COMMERCIAL	X	X	X	N	N	X
SALVAGE OF DEAD						
MATERIAL	X	X	X	X	N	X
CUTTING METHODS:						
CLEARCUT	N	N	N	X	N	X
SHELTERWOOD	X	X	X	O	N	X
SELECTION	X	X	X	X	X	X

X = appropriate practice, O = not an appropriate practice, N = not a standard practice but may be acceptable where justified by other Management Unit requirements.

FOREST-WIDE DIRECTION

MANAGEMENT
ACTIVITIES

GENERAL
DIRECTION

STANDARDS &
GUIDELINES

SILVICULTURAL
PRESCRIPTIONS
(E03, 06,
AND 07)

02 Silvicultural treatments will normally begin after the stand density index (SDI) reaches the lower management level and will be completed prior to reaching the upper management level.

a. Lower management level SDI is start of root or crown competition. Upper management level SDI is start of imminent mortality zone.

	Forest Cover Type				
	ES/AF	DF	WF	PP	AS

A. SDI for stands above 5 inches DBH:

a. Maximum	670	600	830	830	—
b. Upper Level	302	240	374	291	—
c. Lower Level	134	149	205	127	—

B. Rotation age:

a. Maximum	140	140	140	140	120
b. Minimum	80	80	80	80	80

C. Appropriate harvest method: (SW = Shelterwood, PC = Patch cut 1 to 10 acres, CC = Clear cut 10 or more acres, S = Seed tree, GS = Group selection, ST = Single tree selection.)

a. Evenaged	SW	SW	SW	SW&S	CC
b. Unevenaged	GS&ST	GS	GS	GS&ST	PC&ST

D. 5th year stocking standards by site class (SC)
(Primary species must be at least 60% of total stand composition.)

a. SC 20 to 49	150	175	175	175	—
b. SC 50 to 84	195	180	180	180	—
c. SC 84 plus	195	180	180	180	—

E. SDI for residual stands below 5 inch average stand DBH should equal Forest reforestation standards.

F. Height of preferred species at final harvest under a shelterwood harvest system is based on multiple use management needs but must exceed 4 feet.

G. Limit the maximum size opening created by timber sales to 40 acres unless; (1) Approved by the Regional Forester after a 60 day public review period, or (2) Salvaging openings created by natural events such as fire, insect or disease attack, and windthrow.

H. Maximum size opening created by silvicultural treatment other than timber sales can exceed 40 acres provided it meets multiple use management requirements for the concerned Management Unit.

FOREST-WIDE DIRECTION

I. Cutting cycle is determined by silvicultural prescription and economic analysis.

03. Manage timber product removal and utilization to meet Forest multiple use requirements.

A. Sawlog Utilization Standards;

	Species	
	Conifers	Aspen
Minimum DBH (inches)	8.0	7.0
Minimum Top Diameter (inches)	6.0	6.0
Minimum Sawlog Length (feet)	8.5	8.5
Maximum Log Cull Value (as % of gross volume.)	33.3	50.0

B. Other wood product minimum specifications for all species.

a. Product	Unit of Measure	Length	DIB**
Props	ea/lin.ft.	6ft.	6in.
PWR Poles	ea/lin.ft.	16ft.	5in.
Corral Poles	ea/lin.ft.	10ft.	4in.
Posts	ea/lin.ft.	6.5ft.	4in.
Pulpwood	cords	8.3ft.	4in.
Fuelwood	cords	—	—

** DIB is diameter inside bark.

C. Logging or wood product removal requirements to assure controlling soil erosion within acceptable levels.

a. On slopes less than 20 percent allow conventional logging systems and equipment where soil surveys or soil data are unavailable.

b. On slopes less than 40 percent allow conventional logging systems and equipment where soil surveys or soil data are available to design erosion mitigation needs.

c. Utilize high flotation equipment on slopes up to 60 percent or cable or aerial systems on any slope.

MANAGEMENT
ACTIVITIES

GENERAL
DIRECTION

STANDARDS &
GUIDELINES

CONTINUATION OF:
SILVICULTURAL
PRESCRIPTIONS
(B03, 06,
AND 07)

05 Perpetuate Aspen communities through silvicultural treatments:

A. Stands suitable for commercial harvest should be managed for aspen timber production.

B. Stands not suitable for commercial harvest should be managed for range forage and/or wildlife habitat.

a. No more than 12 percent of the total aspen acreage suitable for commercial harvest can be treated in a ten year period except in an accelerated harvest where up to 50 percent of the volume may be removed in a 10 year period.

b. Stands managed for commercial timber may be treated by thinning, weeding, chaining, burning or spraying when conifer encroachment approaches 20 percent of crown cover, or the stand is reaching decadence and harvest is not possible within 5 years.

REFORESTATION
(B04)

01 Establish a satisfactory stand on cutover areas, emphasizing natural regeneration within five years after final harvest except:

A. For permanent openings that serve specific management objectives; or

B. When provided for otherwise in specific management prescriptions.

a. Stocking Standards by Site Productivity for Forest Cover Types:

(1) Table A

Forest Cover Type	Site Prod. (cu.ft. /a/yr)	Planting** Densities (trees/a)	5th Year trees/acre	
			min.	max.
Spruce-	85+	360-680	195	335
Fir	50-84	360-540	195	275
	20-49	300	150	150
Aspen	ALL	—	300	600
Mixed	85+	435-680	180	275
Conifer	50-84	435-550	180	220
	20-49	300-360	150	150
Ponderosa	85+	435-680	180	275
Pine	50-84	435-550	180	220
	20-49	300-360	150	150

** Lower densities are recommended to meet minimum stocking standards. Higher densities are recommended to meet desired stocking standards, with ample stock for selecting genetically superior trees.

MANAGEMENT
ACTIVITIES

GENERAL
DIRECTION

STANDARDS &
GUIDELINES

CONTINUATION OF:
REFORESTATION
(804)

(2) Table B

Forest Cover Type	Percent of of Area Stocked		5th Year Seedling Height (cm.)	
	Minimum	Desired	Minimum	Desired
Spruce-Fir	70	100	8	46
Aspen	70	100	30	114
Mixed Conifer	70	100	8	46
Ponderosa Pine	70	100	8	46

(3) Use minimum stocking standards where no precommercial cutting should be done, and only one harvest should be made to regenerate the stand.

(4) Use desired stocking standards where at least one precommercial cut should be done followed by two sawlog harvests before the final cut is done (aspen should have only one final cut).

02 Do not apply final shelterwood removal cut until the desired number (as specified in minimum stocking standards) of well-established seedling/acre are expected to remain following overwood removal.

03 When supplemental planting, use trees of the best genetic quality available which are adapted to the planting site (FSM 2475).

TIMBER STAND
IMPROVEMENT
(805)

01 Utilize Christmas tree or other product sales and thinning for stocking control where the opportunity exists.

WATER QUALITY
MANAGEMENT
(800)

01 Improve or maintain water quality.

02 Implement best management practices relative to water quality in all resource activities.

a. Meet Utah and Colorado State Water Quality Standards (FSM 2532).

a. Nonpoint Source Water Quality Management Plan for Utah and Colorado.

FOREST-WIDE DIRECTION

MANAGEMENT
ACTIVITIES

GENERAL
DIRECTION

STANDARDS &
GUIDELINES

MUNICIPAL
WATERSHED
MANAGEMENT
(FOO)

01 Manage municipal watersheds for multiple-use with mitigation measures to protect the water supply for intended purposes. Allow projects when the proposed mitigation measures provide adequate protection.

a. R-4 Supplement to FSM 2543.

RIPARIAN,
FLOOD PLAIN
& WETLANDS
MANAGEMENT
(FOO)

01 Prior to implementation of project activities, delineate and evaluate riparian areas and or wetlands that may be impacted.

a. FSM 2542.

02 Give preferential consideration to riparian area dependent resources in cases of unresolvable resource conflicts.

a. FSM 2526.

03 Flood plains should be identified and, as appropriate, a risk/hazard analysis performed for project sites where long-term occupancy is proposed.

a. FSM 2527.

04 Protect present and necessary future facilities that cannot be located out of the 100-year floodplain by structural mitigation (deflection structures, riprap, etc.).

a. Implement mitigation measures when present or unavoidable future facilities are located in active floodplain to ensure that public and facility safety requirements, State water quality standards, sediment threshold limits, bank stability criteria, flood hazard reduction and instream flow standards are met during and immediately after construction.

SOIL & WATER
RESOURCE
INVENTORIES
(FO1)

01 Complete appropriate order of soil and water resource inventories to provide data for Forest activities and uses.

a. Meet the National Cooperative Soil Survey Standards.

02 Protect snow courses from site modification.

b. FSM 2530.4.43 and FSM 2509.16.

SOIL RESOURCE
MANAGEMENT
(FOO)

01 Maintain or improve soil productivity and watershed qualities within the ecological site capabilities.

a. Provide soil resource inventories, interpretations, and evaluation at the appropriate intensity level for projects which could adversely affect the soil resource or where the success or failure of the project depends on soil management.

MANAGEMENT
ACTIVITIES

GENERAL
DIRECTION

STANDARDS &
GUIDELINES

CONTINUATION OF:
SOIL RESOURCE
MANAGEMENT
(FOO)

- 02 Minimize adverse, man-caused impacts to the soil resource including accelerated erosion, compaction, contamination, and displacement.
- A. Protect or conserve topsoil when conducting surface disturbing activities.
 - B. Provide adequate drainage and revegetation on areas capable of supporting vegetation disturbed during construction or other surface disturbing activities to stabilize the area and control soil erosion.
 - C. Stabilize and/or close and rehabilitate non-system roads where significant resource damage is occurring.
 - D. Use soils and materials data for road and trail design.
 - E. Control livestock and big-game grazing so plant cover is not reduced to less than the amount needed for soil and watershed protection.

- a. Maintain soil erosion losses at or below soil loss tolerance values as defined by the Soil Conservation Service as modified by the Forest Service (ref. Soil Erodibility and Soil Loss Factors for Utah Soils, U.S.D.A., S.C.S., 1977).
- b. Add mulch, fertilizer, and other soil amendments as necessary to reduce soil erosion and increase vegetative growth.
- c. Design continuing mitigation or rest rotation practices and followup maintenance activities to insure that vegetative ground cover exceeds 80 percent of adjacent similar undisturbed sites.
- d. Use appropriate design guides for sediment controlling structures.

SOIL & WATER
RESOURCE
IMPROVEMENTS
(FO3)

- 01 Rehabilitate disturbed areas, where feasible, that are eroding excessively and/or contributing significant sediment to perennial streams.

- a. Priorities will be set by the Watershed Improvement Needs Inventory (WINI) and Evaluation.

- b. Soil losses should be at or below the soil loss tolerance values (T - factors) as defined by the Soil Conservation Service and/or as modified by the Forest Service.

- c. FSM 2520.

- 02 Maintain completed watershed improvement projects until project objectives have been attained.
- 03 Identify, prescribe, and implement appropriate action before, during, and after landslide and/or flood events.

WATER YIELD
IMPROVEMENT
(FO3)

- 01 Pursue water yield augmentation when and where research has shown that it is economical and environmentally sound. During the interim, water yield increases will be incidental to other management projects.

MANAGEMENT
ACTIVITIES

GENERAL
DIRECTION

STANDARDS &
GUIDELINES

CONTINUATION OF:
WATER YIELD
IMPROVEMENT
(F03)

02 Analyze the manipulation of forest types, when significant projects are proposed by other activities, for water yield benefits and impacts.

WATER USES
MANAGEMENT
(F07)

01 Secure favorable flows of water to: a. FSH 2509.17
A. Ensure that stream flows maintain stable and efficient channels and to provide for administrative and protection use, pursuant to 1897 Organic Act.
B. Provide for fish and wildlife habitat, recreation and livestock use pursuant to the Multiple Use and Sustained Yield Act of 1960.

02 Obtain through the State, where appropriate, water rights for consumptive uses and instream flows as needed for the purposes of National Forest management. a. FSM 2541.

03 Maintain instream flows to protect Forest resources and uses. a. FSM 2541.

- A. Protest as applicable, water rights applications or uses of others when such uses will interfere with USDA Forest Service water rights, claims, and resources.
- B. Special-use permits, easements, rights-of-way, and similar authorization for use of National Forest System lands shall contain stipulations to maintain bypass flows necessary to fulfill National Forest uses and purposes.

04 Prohibit new or expansion of existing spring or other water source development and related facilities when;
A. Loss of water results in unacceptable impacts to riparian, vegetation, fisheries, or other Forest resources and uses.
B. Development and/or facilities would result in unacceptable erosion, road damage, land instability, or disruption or damage of other facilities or resources.

MANAGEMENT
ACTIVITIES

GENERAL
DIRECTION

STANDARDS &
GUIDELINES

SOIL & WATER
RESOURCE
IMPROVEMENT
MAINTENANCE
(FO8)

01 Provide for maintenance of soil and water resource improvement projects to meet objectives.

a. FSM 2512.

GEOLOGIC
RESOURCES
MANAGEMENT
(GOO)

01 Complete appropriate order of geologic inventory and as appropriate geotechnical investigation in areas where proposed activities or uses could;
A. Be endangered by geologically related hazards such as land instability, earthquakes, subsidence, etc.
B. Or, increase risks of subsidence, land instability, ground water pollution, or diversion.

a. FSM 2880.

02 Monitor identified geologic hazards for effects on management activities.

03 Describe, as appropriate, high interest or unique geological, paleontological, biological, archeological, or historical features for public information and, as appropriate, develop interpretive information for these sites.

04 Assure that appropriate geotechnic and/or geologic data are included in design and construction of facilities, or other developments so as to minimize the potential of inducing failure.

MINERALS
MANAGEMENT
GENERAL
(GOO)

01 Administer sites with producing facilities and known reserves with consideration of ongoing and potential mineral activities.

a. Priority consideration will be given to existing operations and/or leases.

02 Avoid or minimize significant and conflicting public or private investments near sites where mineral activities may occur within the foreseeable future.

MANAGEMENT
ACTIVITIES

GENERAL
DIRECTION

STANDARDS &
GUIDELINES

CONTINUATION OF:
MINERALS
MANAGEMENT
GENERAL
(G00)

03 On classified lands not withdrawn from operations under the general mining laws provide for reasonable protection of the purposes for which the lands were classified and for reclamation of disturbed lands to a condition suitable for the purposes for which the lands were classified. Such lands may include Research Natural Areas, national recreation trails, special interest areas; such as scenic, geologic, or national historic sites, or some other type of specific classification. The status of classified lands with respect to withdrawal must be checked before an operating plan can be approved.

a. 36 CFR 228

04 On unclassified (remaining) lands, provide for reclamation of disturbed lands to achieve the planned uses specified in the Forest Plan, when those lands are no longer needed for mineral operations.

MINING LAW
COMPLIANCE AND
ADMINISTRATION
(LOCATABLES)
(G01)

01 Minimize or as appropriate prevent adverse impacts on surface resources.

a. 36 CFR 228.

02 Review cases of suspected abuse of the mining laws such as occupancy of the land for purposes other than prospecting, mining, and related activities. Initiate appropriate action to resolve abuses.

a. The first action should be administrative. Failure of such action requires examination of claims for validity, followed by appropriate contest proceedings or legal action.

MINERALS
MANAGEMENT
LEASEABLES
(G02 TO 07)

01 Negative recommendations, denials, or consent for leasing, permitting, or licensing will be based on site specific environmental assessments using appropriate standards and guidelines. Stipulations for these actions should minimize and/or mitigate effects or conflicts with other resource uses and should return disturbed lands to conditions compatible with the emphasis of the management unit or adjacent management unit.

a. Any lease, license or permit may be denied or limited by standard or additional stipulations where proposed activities could result in irreparable damage, may preclude existing uses or be contrary to management direction.

b. Stipulations (Appendix B) will be used as appropriate in leases, licenses, or permits.

c. Oil and gas, geothermal, and CO2 lease occupancy be denied or limited by special stipulation where:

- (1) Slopes are steeper than 35 percent;
- (2) Erosion hazard rating is high and mitigation measures could be ineffective.
- (3) Geologic hazard rating is high
- (4) Key wildlife uses may be impaired.

MANAGEMENT
ACTIVITIES

GENERAL
DIRECTION

STANDARDS &
GUIDELINES

CONTINUATION OF:
MINERALS
MANAGEMENT
LEASEABLES
(G02 TO G07)

d. Coal lands will be determined to be suitable for coal leasing through the application of unsuitability and multiple-use criteria (43 CFR 3461 and 43 CFR 3420). Coal leases may be denied or limited by special stipulation where:

- (1) They are not in compliance with the unsuitability criteria or multiple land use decisions established for the unit (Appendix C).
- (2) Surface or transportation facilities needed for operations degrade water quantity or quality.
- (3) Operations would impair the current quality of recreation.
- (4) National Recreation Trails occur.
- (5) Operations would result in unacceptable or unmitigateable impact on wildlife or fisheries.
- (6) Operations could result in aggravating land instability.
- (7) An established need for additional coal cannot be demonstrated.
- (8) Operations and/or production would result in unacceptable and unmitigateable impacts to Human Resource Units. (communities)
- (9) Operations would result in unacceptable or unstable traffic flows.

e. Extraction of coal shall be by underground mining methods.

02 Restrict geophysical activity during periods of heavy recreational use associated with hunting seasons, during key big game use periods, or when unacceptable impacts on other resource uses may be caused.

MINERALS
MANAGEMENT
LEASEABLES
(G02 TO 07)

01 Authorize common variety exploration and disposals under terms and conditions to prevent or control adverse impacts on surface resources and uses and properly reclaim the site.

a. Any lease, license or permit may be denied or limited by special stipulations where proposed activities; could result in irreparable damage, may result in precluding existing uses; or be contrary to established management direction.

MANAGEMENT
ACTIVITIES

GENERAL
DIRECTION

STANDARDS &
GUIDELINES

SPECIAL-USE
MANAGEMENT (NON-
RECREATION)
(J01)

- 01 Act on special-use applications according to the following priorities:
- A. Land and use activity requests relating to public safety, health and welfare, e.g., highways, powerlines and public service improvements.
 - B. Land and use activities contributing to increased economic activity associated with National Forest resources, e.g., oil and gas, and energy minerals.
 - C. Land and use activities that benefit only private users, e.g., road permits, rights-of-way for powerline telephones, waterlines, etc.

- a. An application for permit may be denied if the authorizing officer determines that:
- (1) The proposed use would be inconsistent or incompatible with the purpose(s) for which the lands are managed, or with other uses, or
 - (2) The proposed use would not be in the public interest, or
 - (3) The applicant is not qualified, or
 - (4) Use would be inconsistent with applicable Federal and/or State laws, or
 - (5) The applicant does not or cannot demonstrate technical or financial capability.
 - (6) Existing corridor analysis (Appendix D.) will be used as a basis for evaluating proposed corridors. (New corridor data will be used to update Appendix D).

- 02 Encourage burying utility and lines, except when:
- A. Visual quality objectives of the area can be met using an overhead line.
 - B. Burial is not feasible due to soil erosion or geologic hazard or unfavorable geologic conditions.
 - C. Greater long-term site disturbance would result.
 - D. It is not technically feasible, or economically reasonable.

- 03 Approve special-use applications for areas adjacent to developed sites only when the proposed use is compatible with the purpose and use of the developed site.

RIGHTS-OF-WAY
AND LAND
ADJUSTMENTS
(J02, 13, 15,
16, 17, AND 18)

- 01 Acquire rights-of-way for Forest Development Roads and Trails that cross private land.
- 02 Ensure that properties are equal in value on both offered and selected tracts in proposed land exchanges, or made equal in cash payment not to exceed 25% of Federal value.

- a. Act of Oct. 21, 1976, ELMA.

MANAGEMENT
ACTIVITIES

GENERAL
DIRECTION

STANDARDS &
GUIDELINES

CONTINUATION OF:
RIGHTS-OF-WAY
AND LAND
ADJUSTMENTS
(JO2, 13, 15,
16, 17, & 18)

- 03 Classify lands or interest in lands for acquisition where lands are valuable for NFS purposes according to the following priorities:
 - A. Where lands or rights-of-way are needed to meet resource management goals and objectives.
 - B. Lands which provide habitat for threatened and endangered species of animals and plants.
 - C. Lands having historical or cultural resources, outstanding scenic values or critical ecosystems, when these resources are threatened by change of use or when management may be enhanced by public ownership.
- 04 Classify lands for disposal according to the following priorities:
 - A. To simplify administration of NFS lands.
 - B. To State, County, city, or other Federal agency when disposal will serve a greater public interest.
 - C. In small parcels intermingled with mineral or homesteads patents.
 - D. When suitable for development by the private sector, if development (residential, agricultural, industrial, recreational, etc.) is in the public interest.
 - E. When important or unique resource (wetlands, flood-plains, essential big-game winter range, threatened or endangered species habitat, historical or cultural resources, critical ecosystems, etc.) effects are mitigated by reserving interests to protect the resource, or by exchange where other critical resources to be acquired are considered to be of equal or greater value.
- 05 Effect jurisdictional transfers which achieve the following objectives:
 - a. Reduce duplication of efforts by users and agencies in terms of time, cost, and coordination.
 - b. Improve or maintain user access to the administering agency.
 - c. Decrease travel and enhance management.
 - d. Improve public understanding of applicable laws, regulations, policies, and procedures.
 - e. Create more effective work units.
 - f. Reduce administrative cost.

MANAGEMENT
ACTIVITIES

GENERAL
DIRECTION

STANDARDS &
GUIDELINES

WITHDRAWALS,
MODIFICATIONS
AND REVOCATIONS
(JO4)

- 01 Withdrawals must be for the purpose of protecting specific existing or proposed uses. Initiate action for withdrawal from entry when other applicable laws and regulations will not provide the opportunity for protection of the surface resources and uses.
 - A. Retain existing withdrawals needed for National Forest purposes.
 - B. Review and comment on the multiple-use effects of existing and proposed withdrawals on National Forest System lands by other agencies.
- 02 Comply with the intent of withdrawals in the design and implementation of resource development activities.

- a. Withdrawals from entry under General Mining Laws will be in conformance with Section 204 of the Federal Land Policy and Management Act of 1976 (FL 94-579).
- b. Withdrawals under the Minerals Leasing Act will be the exception owing to the discretion allowed in each case for disposal.
- c. Common variety mineral withdrawals are not needed since full authority for disposal is held by the Forest Service.

PROPERTY
BOUNDARY
LOCATION
(JO6)

- 01 Locate, mark, and post landlines according to the following priorities:
 - A. Lines needed to meet planned activities;
 - B. Lines needed to protect NFS lands from encroachment, and
 - C. All other lines.

TRANSPORTATION
SYSTEM
MANAGEMENT
(LO1 AND 20)

- 01 Close newly constructed intermittent local roads to the public after initial intended use is completed when:
 - A. The establishment of public use is undesirable.
 - B. The road is unsafe for public travel.
 - C. Management direction has previously been established to close the road.
- 02 Allow commercial or permitted use on Forest Development Roads under the following conditions:
 - A. Use is compatible with existing road standards, designs and public safety and user provides commensurate share of road maintenance.
 - B. User reconstructs the road to incorporate both existing and proposed traffic and provides commensurate share of road maintenance.

MANAGEMENT
ACTIVITIES

GENERAL
DIRECTION

STANDARDS &
GUIDELINES

CONTINUATION OF:
TRANSPORTATION
SYSTEM
MANAGEMENT
(LO1 AND 20)

- C. If the road meets design standards but the combined use does not fulfill public safety requirements due to volume of traffic, the road may be administratively managed to control conflicting traffic, unsafe conditions or traffic flows.
- 03 Encourage the development of Forest Development Roads, when constructed or reconstructed for special purposes to meet existing and potential all purpose needs.
- 04 Put roads under special-use permit or easement that are needed for the benefit of private uses, and are not needed for public travel or the administration of Forest resources.
- 05 Consider turning existing Forest Development Roads over to county or State jurisdiction when:
 - A. The use is predominately to serve non-Forest resources, or
 - B. The road better compliments county or State jurisdiction than Forest administration, or
 - C. Little or no future Forest need for the management of Forest resources is perceived, or
 - D. The road is of such high standards that established Forest maintenance is difficult or impossible.
- 06 Close Forest Development Roads when unacceptable environmental or road damage is occurring as a result of road use.
- 07 Where possible, establish cost and commensurate share agreements for access roads constructed for other resource uses.
- 08 Coordinate transportation planning for Forest Development Roads with Forest Trails to provide continuity and fulfill Forest transportation needs.

MANAGEMENT
ACTIVITIES

GENERAL
DIRECTION

STANDARDS &
GUIDELINES

ARTERIAL AND
COLLECTOR ROAD
CONSTRUCTION AND
RECONSTRUCTION
L02 to 09
L16 to 18)

01 Construct and reconstruct arterial and collector roads to meet multiple resource needs and the following standards:

- A. Average Travel Speed.....
- B. Number of Lanes.....
- C. Surfacing.....
- D. Width.....
- E. Drainage.....

a. Construction and reconstruction standards

Arterial	Collector
30-55 mph	10-30 mph
Generally two lanes.	Generally one lane.
All weather, with asphalt or gravel generally.	Generally gravel, sometimes asphalt.
Typically 20 to 24 feet, but some single lane with intervisible 10-foot turnouts.	Typically 12 to 16 feet, with 10 foot turnouts.
Permanent, but not to impede traffic.	Permanent but may impede traffic.

LOCAL ROAD
CONSTRUCTION AND
RECONSTRUCTION
(L11, 12,
AND 13)

01 Construct and reconstruct local roads to provide access for specific resource activities such as campgrounds, trailheads, timber sales, range allotments, leases, etc., with the minimum amount surface disturbance and fitting the road to the topography.

a. Construction and reconstruction standards for local roads are (FSH 7709.56):

- (1) Travel Speed - Average less than 20mph.
- (2) Lanes - Usually single lane except for developed recreation sites.
- (3) Surface - Varies from asphalt to native surface; majority native surface.
- (4) Width - Typically 10 thru 14 feet. Turnouts optional depending upon traffic management and usually not intervisible.
- (5) Drainage - Dips and culverts.

02 Construct temporary roads for specific resource activities such as timber sales, emergencies, (e.g., fire suppression), or mineral exploration.

a. Temporary roads shall not be designated as Forest development transportation facilities.

b. Forest Development Road and Trail funds shall not be used for temporary road construction and/or rehabilitation.

c. Temporary roads shall be returned to resource production and use compatible with the management unit emphasis, and within one season after termination of the activity for which the road was constructed.

MANAGEMENT
ACTIVITIES

GENERAL
DIRECTION

STANDARDS &
GUIDELINES

ROAD
MAINTENANCE
(L19)

01. Maintain roads to minimum requirements as follows:

- A. All arterials - Level 3;
- B. All open collectors - Level 2/3;
- C. All open local roads - Level 2; and
- D. All closed roads - Level 1.

a. FSM 7730.

b. Level 1 maintenance includes upkeep of drainage structures and vegetation cover necessary to prevent erosion.

02. Maintain structures, bridges, cattleguards, etc., to be structurally sound and safe for use.

TRAIL
SYSTEM
MANAGEMENT
(L23)

01. Maintain trails for designated uses and close trails to inappropriate uses.

a. FSM 2350, FSM 7703, FSH 2309.18, and 36 CFR 261.12.

02. Provide a range of trail opportunities in coordination with other Federal, State, or local agencies, and private industry both on and off NFS lands.

TRAIL
CONSTRUCTION AND
RECONSTRUCTION
(L22)

01. Construct or reconstruct trails when needed as part of the transportation system.

a. Cross drains and conveyance structures are planned to acceptable work standards (FSM 1310).

EASO CONSTRUCTION
RECONSTRUCTION
AND MAINTENANCE
(L24 AND 25)

01. Existing or proposed facility sites will be identified and managed under the Management Prescription for Special Land Designation (SLD).

FIRE PLANNING
AND
PRESUPPRESSION
(P01)

01. Provide a level of protection from wild fire that is cost efficient and that should meet objectives of the management unit considering the following:

- A. The values of the resources that are threatened by fire,
- B. The probability of fire occurrence,
- C. The fuelbed that fires will probably occur in,
- D. The weather conditions that will probably influence fires that occur.
- E. The costs of fire protection programs (FFP and FFF).
- F. The environmental, social, economic, political, public safety, cultural, and property concerns; and
- G. Management objectives for the area.

a. Use the predictive model in FSH 5109.19 for this analysis.

MANAGEMENT
ACTIVITIES

GENERAL
DIRECTION

STANDARDS &
GUIDELINES

INITIAL ATTACK
AND FIRE
SUPPRESSION
(P08)

01. Take appropriate suppression action that meets the management objectives for the unit, using confinement, containment, and control as suppression strategies, considering the following factors:
- A. Values of the resources threatened by the fire (both positive and negative),
 - B. Management objectives for the unit(s) threatened,
 - C. Fuelbeds the fire may burn in,
 - D. Current and projected weather conditions that will influence fire behavior,
 - E. Natural barriers and fuel breaks,
 - F. Social, economic, political, cultural, and environmental concerns,
 - G. Public safety,
 - H. Firefighter safety; and
 - I. Costs of alternative suppression strategies.

- a. Use the Escaped Fire Situation Analysis to make this determination, if the proposed suppression strategy is confinement or containment (FSM 5130.31).

FUEL TREATMENT
(P11 to 14)

01. Maintain fuel conditions which permit fire suppression forces to meet protection objectives for the Management Unit.

- a. Reduce or otherwise treat fuels, or break up continuous fuel concentrations, or provide added protection for areas.

VEGETATION
TREATED BY
BURNING
(P15)

01. Use preplanned prescribed fire resulting from planned or unplanned ignitions to accomplish resource management objectives, such as reducing fuel load buildup, range or wildlife habitat improvement, etc.

AIR RESOURCE
MANAGEMENT
(P16)

01. Meet State and Federal air quality objectives.

- a. FSM 2121.

INSECT AND
DISEASE
MANAGEMENT
OR SUPPRESSION
(P35)

01. Prevent or suppress epidemic insect and disease populations that threaten forest and/or range land with an Integrated Pest Management (IPM) approach consistent with resource management objectives.

Management Unit Requirements

The management unit requirements included in this section represent the direction applicable to reach specific objectives for specific areas of land. They supplement and may amend the Forest-wide Direction contained in the previous section of this document. These requirements in various combinations were used as the basis for developing the alternatives analyzed in the accompanying Environmental Impact Statement.

A code was assigned to each management unit requirement in order to link the prescription to the land area. The location of management units is illustrated on the Forest Plan Map inserted inside the back cover of this document.

The requirements for each management unit consists of a prescription summary and a set of management requirements. The prescription summary identifies the primary emphasis of the prescription. All prescriptions are multiple-use prescriptions, but each has a primary emphasis.

Management Requirements are presented in three columns: Management Activities, General Direction statements, and Standards and Guidelines.

Management activities are work processes that are conducted to produce, enhance, or maintain levels of outputs, or to achieve administrative and environmental quality objectives. Management activities are identified by a code number and title defined in the Management Information Handbook (FSH 1309.11) dated July 1980. In some cases, management activities were grouped under one activity when it was not appropriate to develop separate requirements. Not all management activities need management requirements. When there are no management requirements listed for an activity, the activity is adequately covered by Forest-wide Direction or direction in laws, regulations, Executive Orders, or Forest Service directives.

General Direction statements specify the actions, measures, or treatments (management practices) to be done when implementing the management activity, or the condition expected to exist after the General Direction is implemented.

Standards and Guidelines are quantifications of the acceptable limits within which the General Direction is implemented.

Table III-3 lists each management unit prescription and briefly states its emphasis. Table III-4 lists the management units, their total acreage, and the acres treated by resource activity area by planning period.

TABLE III-3

Management Unit Symbol and Name

Recreation Emphasis Units

- DRS - Developed Recreation Sites
- UDM - Undeveloped Motorized Recreation Sites
- SPR - Semiprimitive Recreation

Wildlife Emphasis Units

- KWR - Key Big-Game Winter Range
- GWR - General Big-Game Winter Range

Range Emphasis Units

- RNG - Range Forage Production

Timber Management Emphasis Units

- TBR - Wood Fiber Production and Utilization

Watershed Emphasis Units

- RPN - Riparian
- MWS - Municipal Water Supply
- WPE - Watershed Protection and Improvement

Minerals Emphasis Units

- MMA - Leasable Minerals Area

Special Emphasis Units

- RPI - Research Protection and Interpretation Areas
- DCW - Wilderness
- SLD - Administrative Facility and Special Use Sites

Other Units

- UC - Utility Corridors

TABLE III-4

RESOURCE ACTIVITIES BY MANAGEMENT PRESCRIPTION BY PLANNING PERIOD

Management Prescription & Total Acres	Period	Acres Treated					Outputs			
		Resource Activity					Resource Activity			
		Range	Timber	Wildlife	Minerals	Watershed	Range AUM's	Timber MBF	Wildlife M&FUD's	Recreation NRVD's
DRS - 2,750 Acres	1	0	0	0	0	0	9	—	—	338.8
	2	0	0	0	0	0	10	—	—	436.3
	3	0	0	0	0	0	10	—	—	632.2
UEM - 680 Acres	1	0	0	0	0	0	90	—	—	111.8
	2	0	0	0	0	0	100	—	—	144.0
	3	0	0	0	0	0	100	—	—	208.6
SPR - 106,060 Acres	1	2,620	100	0	350	0	5,750	.010	28.6	51.8
	2	1,000	200	25	310	950	5,980	.020	32.7	68.4
	3	400	600	50	840	3,120	6,070	.030	36.7	100.4
ENR - 16,760 Acres	1	0	0	360	0	420	2,280	—	4.5	11.2
	2	0	0	360	0	0	2,370	—	5.2	15.0
	3	0	0	1,020	0	0	2,400	—	5.8	21.7
GMR - 190,460 Acres	1	2,120		830	860	70	25,790	—	51.4	127.5
	2	2,000		790	770	220	26,830	—	58.8	170.9
	3	1,000		2,430	2,080	390	27,220	—	66.0	247.1
RNG - 787,250 Acres	1	27,180	9,700	1,790	3,650	1,140	106,720	.950	212.3	526.9
	2	22,060	12,800	1,830	3,280	800	111,020	1.530	242.9	706.2
	3	16,400	14,700	5,490	8,860	3,432	112,520	.710	272.8	1,021.4
TNR - 145,800 Acres	1	550	22,900	60	680	200	11,840	2.240	39.3	97.6
	2	300	29,600	50	620	120	12,320	3.540	45.0	130.8
	3	300	100,800	160	1,600	468	12,500	4.860	50.5	189.2
RPN - (20,020 Acres)	1	0	0	40	30	0	Included Above	Included Above	79.9	Included Above
	2	0	0	50	30	0			90.5	
	3	0	0	4,120	80	0			107.8	
M&S - 11,920 Acres	1	0	0	0	20	0	960	—	3.2	.7
	2	0	0	0	20	0	1,000	—	3.7	1.0
	3	0	0	0	60	0	1,020	—	4.1	1.4
WFE - 14,150 Acres	1	500	0	0	60	2,150	60	—	3.8	.8
	2	400	0	0	60	2,240	60	—	4.4	1.1
	3	300	0	0	100		60	—	4.9	1.6
MMA - 1,060 Acres	1	0	0	0	470	0	0	—	—	—
	2	0	0	0	220	0	0	—	—	—
	3	0	0	0	270	0	0	—	—	—
RPI - 8,650 Acres	1	0	0	0	0	0	30	—	2.3	5.2
	2	0	0	0	0	0	30	—	2.7	6.9
	3	0	0	0	0	0	30	—	3.0	10.0
DCW - 45,000 Acres	1	0	0	0	0	0	40	—	2.1	4.1
	2	0	0	0	0	0	50	—	3.9	3.8
	3	0	0	0	0	0	50	—	5.6	11.8
SLD - 2,030 Acres	1	0	0	0	0	0	0	—	—	—
	2	0	0	0	0	0	0	—	—	—
	3	0	0	0	0	0	0	—	—	—
UC - 1,930 Acres	1	0	0	0	0	0	140	—	2.2	.1
	2	0	0	0	0	0	140	—	2.6	.2
	3	0	0	0	0	0	150	—	2.9	.2

**MANAGEMENT PRESCRIPTION DRS
(EMPHASIS IS ON PROVIDING DEVELOPED RECREATION SITES)**

Management emphasis is for developed recreation facilities such as campgrounds, picnic grounds, trailheads, visitor information facilities, summer homes areas, ski areas, and water-related support facilities. Proposed sites (sites scheduled for development in the Forest Plan) are managed to maintain the site attractiveness until they are developed.

Facilities such as roads, trails, signs, etc., may dominate or subordinate, but should harmonize and blend with the characteristic landscape. Livestock grazing is generally excluded from developed sites. As appropriate, existing developed sites should be withdrawn from locatable mineral entry, and closed to surface occupancy for leasable and saleable minerals.

The prescription can be considered for application to all existing developed recreation sites and proposed sites identified for development.

III-47

(EMPHASIS IS ON DEVELOPED RECREATION SITES)

MANAGEMENT UNIT DIRECTION DRS

MANAGEMENT REQUIREMENTS

MANAGEMENT ACTIVITIES

GENERAL DIRECTION

STANDARDS & GUIDELINES

VISUAL RESOURCE MANAGEMENT (A04)

- 01 On-site visual quality objective is partial retention or modification.

RECREATION SITE CONSTRUCTION AND REHABILITATION (A05 AND 06)

- 01 Develop appropriate facilities where the present facilities are not meeting the demand and where it meets the highest net public benefit.
- 02 Provide facilities which are accessible to handicapped persons in proportion to the anticipated number of users with handicaps.
- 03 Facilities proposed for construction or reconstruction which lie within identified 100 year floodplains will be evaluated as to the specific flood hazards and values involved with the unit.
- 04 Design facilities and access to provide site protection, efficient maintenance, and user convenience. Design and develop sites to ensure that developed capacity meets the anticipated demand.
- 05 Design, construct and operate developed sites which are adjacent to or provide an access point into a wilderness to complement wilderness management objectives.

a. FSM 2330.

a. Construct and reconstruct existing and new developed sites in accordance with the guidelines in FSM 2331.

MANAGEMENT OF DEVELOPED RECREATION SITES (A08, 09, 11, AND 13)

- 01 Construct, reconstruct and maintain developed sites in accordance with the established Recreation Opportunity Spectrum (ROS) classification for the management unit.

a. Site Development Scale by ROS Class:

ROS Class	Site Development Scale**
Semiprimitive	Not to exceed 2
Motorized	Class 3
Roaded Natural	Class 4
Rural	Class 5
Urban	

** FSM 2331.47

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
CONTINUATION OF: MANAGEMENT OF DEVELOPED RECREATION SITES (A08, 09, 11, AND 13)	02 Strive to manage development scale 3 and 4 sites for full service when at least one of the following are met: A. A campground is designated as a fee site; B. More than 20 percent of theoretical capacity is being utilized; C. A group campground or picnic ground has a reservation system and/or user fee; or D. The unit is a swimming site, a boating site with a constructed ramp, or a staffed visitor information center.	a. FSM 2332.
	03 Maintain facilities in safe condition. Replace facilities when rehabilitation costs are 50 percent or more of replacement costs or existing facilities cease to be compatible with site design or ROS classification.	a. FSH 2309.11, Sec. 122.
	04 Post the past and probable flood heights in inventoried 100-year floodplains to provide the public visible warnings about possible periodic flooding.	a. FSM 2520.
	05 Maintain developed sites in accordance with regionally acceptable work standards.	a. FSM 2330.
RECREATION MANAGEMENT (PRIVATE AND OTHER PUBLIC SECTOR) (A16)	01 Allow the private sector to provide recreation oriented support services where it is appropriate.	
RANGE RESOURCE MANAGEMENT (D02)	01 Manage livestock grazing to reduce conflicts in existing and proposed recreation sites.	a. Construct, as needed, fences of appropriate materials around developed sites. b. Exclude livestock from areas that cannot be maintained in Code-A-Site category light, as a result of livestock grazing.

MANAGEMENT
ACTIVITIES

GENERAL
DIRECTION

STANDARDS &
GUIDELINES

SILVICULTURAL
EXAMINATION
AND
PRESCRIPTION
(E03, 06,
AND 07)

- 01 Manage trees and shrubs to enhance visual quality and recreation opportunities on existing and proposed recreation sites.
- 02 Remove unsafe and/or dead trees in developed sites. Plant new trees to provide desired tree cover when natural regeneration is insufficient.

a. See Technical Report R-2-1 919810 Tree Hazards: Recognition and Reduction in Recreation Sites.

MINERALS
MANAGEMENT
GENERAL
(G00)

- 01 Manage mineral activities to be compatible with recreation uses and visual quality objectives.

MINERALS
MANAGEMENT
LEASEABLES
(G02 TO 07)

- 01 Allow mineral leasing where it is determined that stipulated methods of development and extraction will not adversely affect recreation values to any significant degree.

MINERALS
MANAGEMENT
SALEABLES
(G02 TO G07)

- 01 Authorize common variety exploration and disposals under terms and conditions that prevent or control adverse impacts on surface resources and uses and properly reclaim the renewable resources.

a. Any lease, license or permit may be denied or limited by special stipulations where proposed activities; could result in irreparable damage, may result in precluding existing uses; or be contrary to established management direction.

WITHDRAWALS,
MODIFICATIONS
AND REVOCATIONS
(J04)

- 01 Withdraw as appropriate from mineral entry.

TRANSPORTATION
SYSTEM
MANAGEMENT
(L01 TO 20)

- 01 Design, construct, and maintain roads to assure they are compatible insofar as possible with developed recreation sites use unit objectives.

a. FSM 2300.

INITIAL ATTACK
AND FIRE
SUPPRESSION
(P08)

- 01 Control wildfires at all intensity levels.

MANAGEMENT
ACTIVITIES

GENERAL
DIRECTION

STANDARDS &
GUIDELINES

AIR RESOURCE
MANAGEMENT
(P16)

01 Manage facilities in and adjacent to recreation sites
to maintain acceptable levels of air quality.

NOISE ABATEMENT
(P23)

01 Restrict uses that cause noise levels to that which
should provide desirable recreation opportunities.

a. Noise levels within these units will gener-
ally be restricted to 30 decibels or less except
for noises generated by normal conservation and
developed recreation activities.

MANAGEMENT PRESCRIPTION UDM
(EMPHASIS IS ON UNDEVELOPED MOTORIZED RECREATION SITES)

Management emphasis is on providing high quality dispersed recreation opportunities in areas characteristically receiving moderate to heavy levels of use. Visual resources are managed so that activities of man remain visually subordinate or are not evident. Range, timber, wildlife, and mineral resource activities and use may occur subject to maintaining appropriate ROS user experience or setting characteristics visual quality objectives, not permanently exceeding threshold levels for noise and air quality, or seriously impairing recreation use.

These units generally occur along arterial and collector roads, although they may occur along local roads or trails and generally near water bodies.

(EMPHASIS IS ON UNDEVELOPED MOTORIZED RECREATION USE)

MANAGEMENT UNIT DIRECTION UDM

MANAGEMENT REQUIREMENTS

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
VISUAL RESOURCE MANAGEMENT (A04)	01 On-site visual quality objective is partial retention or modification.	
RECREATION SITE CONSTRUCTION AND REHABILITATION (A05 AND 06)	01 Inventory dispersed sites as potential developed recreation sites, and as appropriate reclassify as Developed Recreation Sites (DRS) management units when substantial demand exists and based on an orderly development program.	
DISPERSED RECREATION MANAGEMENT (A14 AND 15)	01 Emphasize semiprimitive nonmotorized, semiprimitive motorized, and roaded natural appearing recreation opportunities.	
	02 Close specific land areas or travel routes either permanently or seasonally to maintain compatibility with adjacent area management, to prevent resource damage, for economic reasons, to prevent conflicts of use, and provide for user health and safety.	
	03 Manage motorized vehicle use (including snowmobiles) on and off Forest Development Roads and Trails.	a. Title Code 36 CFR, part 261.
	04 Provide facilities, as appropriate, include development Level one or two campgrounds. Trailheads, local roads, parking lots, and signing may also be provided.	a. FSM 2330, FSM 7730, FSH 2309.18 (Trails Handbook), FSH 7109.11A and 11B (Sign Handbook).
RANGE RESOURCE MANAGEMENT (D02)	01 Manage livestock use to be compatible with recreation use. Locate structural and design non-structural improvements to meet visual quality objectives.	
SILVICULTURAL EXAMINATION AND PRESCRIPTION (E03, 06, AND 07)	01 Manage tree stands using commercial or noncommercial methods to maintain or enhance recreation values, visual quality, visitor safety or control insects and disease.	a. "Tree Hazards: Recognition and Reduction in Recreation Sites" Technical Report R2-1 (1981).
	02 Implement vegetation plans in Level 2 development sites.	

MANAGEMENT UNIT DIRECTION UDM

MANAGEMENT
ACTIVITIES

GENERAL
DIRECTION

STANDARDS &
GUIDELINES

CONTINUATION OF: 03 Plant new trees to provide desired cover when natural
SILVICULTURAL reproduction is insufficient.
EXAMINATION
AND
PRESCRIPTION
(E03, 06,
AND 07)

MINERALS 01 Manage mineral activities to be compatible with
MANAGEMENT recreation uses and visual quality objectives.
GENERAL
(G00)

SPECIAL-USE 01 Permit special uses which are complementary and
MANAGEMENT (NON- compatible with the kind and level of development within
RECREATION) the unit.
(J01)

TRANSPORTATION 01 Design, construct, and maintain roads to assure
SYSTEM they are compatible insofar as possible with Undeveloped
MANAGEMENT Motorized Recreation management unit objectives.
(L01 AND 20)

a. FSM 2300.

III-54

MANAGEMENT PRESCRIPTION SPR
(EMPHASIS IS ON SEMIPRIMITIVE RECREATION USE)

Management emphasis is for providing semiprimitive motorized and nonmotorized recreation opportunities. Recreation opportunities such as hiking, horseback riding, hunting, cross-country skiing, vehicular travel, etc., are available. Some units, or areas within units may be closed seasonally or permanently to motorized use. Seasonal or permanent restrictions on human use may be applied to provide for the protection of the physical, biological, and social resources.

Investments in compatible resource uses such as timber harvest, livestock grazing, wildlife habitat, mineral exploration and development, special uses, etc., may occur as long as they meet the planned VQO and maintain a high quality semiprimitive recreation opportunity. When the approved activity ceases, roads, structures, and appurtenances will be rehabilitated as closely as possible to reflect the previous, undisturbed condition.

III-55

(EMPHASIS IS ON SEMIPRIMITIVE RECREATION USE)

MANAGEMENT UNIT DIRECTION SPR

MANAGEMENT REQUIREMENTS

MANAGEMENT ACTIVITIES

GENERAL DIRECTION

STANDARDS & GUIDELINES

DISPERSED RECREATION MANAGEMENT (A14 AND 15)

- 01 Manage for semiprimitive recreation opportunities.
 - A. Close all or part of the unit to motorized use when such use is incompatible with the recreation resource activities and/or uses of the unit.
 - B. Open specific closed areas or travel routes seasonally as appropriate with specific authorization to accomplish resource management activities and/or uses.
 - C. Open the unit or selected roads and/or trails for motorized recreation when such use is compatible with the planned ROS Class of the unit.

a. FSM 2350.

- 02 Provide facilities such as foot and horse trails, Level 1 campgrounds, and necessary signing as appropriate for the protection of resources.

a. FSM 2330, FSM 7730, FSH 2309.18 (Trails Handbook), FSH 7109.11A and 11B (Sign Handbook).

- 03 Manage site use and occupancy to maintain sites so as not to exceed Code-A-Site category "Heavy Impact".

a. See Code-A-Site research paper, PNW-209 dated 1976.

RECREATION MANAGEMENT (PRIVATE AND OTHER PUBLIC SECTOR) (A16)

- 01 Consider allowing private sector to provide recreation oriented support services.

WILDLIFE HABITAT IMPROVEMENT AND MAINTENANCE (002, 04, 05 AND 06)

- 01 Manage wildlife and fish habitat to be compatible with the recreation use. Locate structural and design non-structural improvements to meet visual quality objectives.

RANGE RESOURCE MANAGEMENT (D02)

- 01 Manage livestock use to be compatible with recreation use. Locate structural and design non-structural improvements to meet visual quality objectives.

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
SILVICULTURAL EXAMINATION AND PRESCRIPTION (E03, 06, AND 07)	<p>01 Manage tree stands using commercial or noncommercial methods to maintain or enhance recreation opportunities, visual quality, visitor safety or control insects and disease.</p> <p>02 Use mechanical, chemical, or burning treatments to alter or perpetuate timber stands and increase herbaceous yield or cover as appropriate in areas where harvest methods are impractical or demand does not exist.</p>	
MINERALS MANAGEMENT GENERAL (G00)	<p>01 Allow mineral activities that are designed to cause the least impact and facilitate final reclamation.</p>	
SPECIAL USE MANAGEMENT (NON- RECREATION) (J01)	<p>01 Permit special uses which are complementary and compatible with the objectives of the management unit and which do not change the ROS classification.</p>	
LOCAL ROAD CONSTRUCTION AND RECONSTRUCTION (L11, 12, AND 13)	<p>01 Design and locate local roads and/or trails to minimum standards and to complement other resources and to facilitate final reclamation.</p>	
TRAIL SYSTEM MANAGEMENT (L22 AND 23)	<p>01 Trails design, construction, and maintenance will be compatible with semiprimitive recreation opportunities.</p> <p>02 Manage National Recreation Trails to emphasize foot and horseback travel. Do not allow mechanized vehicle use.</p>	<p>a. The VQD for National Recreation Trails should be based on maintaining a recreation visitor sensitivity level one classification.</p> <p>b. FSM 2350, FSM 7703.</p>

MANAGEMENT PRESCRIPTION KWR
(EMPHASIS IS ON KEY BIG-GAME WINTER RANGE)

Management emphasis is on providing winter forage and cover for big-game species in areas that must be available and unencumbered for wildlife use each year during the critical winter period. Vegetative treatments are applied to increase forage production of grass, forb, and especially browse species and/or to create and maintain thermal and hiding cover. This may include prescribed burning, seeding, spraying, planting, and mechanical treatments. Browse stands are regenerated to maintain a variety of age classes and species.

Conflicting uses are not permitted on a continuing basis, but may be permitted outside the critical season if there is no long-term degradation. Livestock grazing that is compatible with wildlife habitat is permitted.

New roads other than short-term (temporary) roads are located outside of the management unit. Short-term roads will be rehabilitated to provide for wildlife use within one season after completed use. Prohibit motorized use to prevent unacceptable stress on big game during critical use periods.

Acquire key big-game winter range or wildlife habitat easements within or adjacent to the National Forest.

(EMPHASIS IS ON KEY BIG-GAME WINTER RANGE)

MANAGEMENT UNIT DIRECTION KWR

MANAGEMENT REQUIREMENTS

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
MANAGEMENT OF DEVELOPED RECREATION SITES (A08, 09, 11, AND 13)	01 None permitted on NFS lands.	
DISPERSED RECREATION MANAGEMENT (A14 AND 15)	01 Manage recreational activities so they do not conflict with wildlife use of habitat.	a. Close management units to vehicular travel and to snowmobile use during the critical use season. b. Do not provide parking or trailhead facilities during winter.
WILDLIFE AND FISH RESOURCE MANAGEMENT (C01)	01 Provide big-game forage, cover, and habitat to help achieve the wildlife population objectives identified in interagency herd unit plans.	a. Maintain at least 30 percent of shrub plants in mature age, and at least 10 percent in young age classes. b. Maintain at least two shrub species on shrub lands capable of growing two or more shrub species.
RANGE RESOURCE MANAGEMENT (D02)	01 Manage livestock grazing to favor big-game habitat.	a. Establish proper use criteria for livestock use that should maintain or enhance habitat for wildlife. Limit livestock use to this use level.
TIMBER RESOURCE MANAGEMENT (E00)	01 Forest habitat types within this unit will be managed to provide big-game forage, thermal cover, and security in association with the other vegetative habitat types.	
MINERALS MANAGEMENT GENERAL (G00)	01 Modify, delay, or deny mineral leasing, exploration, and/or surface occupancy, where applicable, if it causes unacceptable stress on big game or unmitigated damage to their habitat.	a. Prohibit activities during critical periods of big-game use. b. Approved activities must be short-term and prompt reclamation must be assured.

MANAGEMENT
ACTIVITIES

GENERAL
DIRECTION

STANDARDS &
GUIDELINES

SPECIAL USE
MANAGEMENT (NON-
RECREATION)
(J01)

- 01 Prohibit and/or eliminate special uses that conflict with wintering animals.
- 02 Authorize only those uses that would enhance or improve winter range condition.

RIGHTS-OF-WAY
AND LAND
ADJUSTMENTS
(J02, 13, 15,
16, 17, AND 18)

- 01 Acquire private lands or obtain wildlife habitat easements needed for big-game winter range.

TRANSPORTATION
SYSTEM
MANAGEMENT
(L01 AND 20)

- 01 Use road or area closures to maintain habitat effectiveness.

a. Prohibit activities during critical periods of big-game use.

b. Approved activities must be short-term and prompt reclamation must be assured.

- 02 Prohibit new permanent roads in the unit.

- 03 Allow short-term (temporary) roads where the use would not conflict with wintering big game.

INITIAL ATTACK
AND FIRE
SUPPRESSION
(P08)

- 01 Control wildfires at all intensity levels.

09-III

MANAGEMENT PRESCRIPTION GWR
(EMPHASIS IS ON GENERAL BIG-GAME WINTER RANGE)

Management emphasis is on providing general big-game winter range. These are areas wildlife traditionally use. Treatments of various types are applied to increase forage production and plant species composition. This may include chaining, cutting, prescribed burning, seeding, spraying, planting, and other treatments. Selected browse species are regenerated to maintain a variety of age classes.

Investments in compatible resource activities may occur. Livestock grazing is generally compatible and is managed to favor big-game habitat. Structural range improvements will be designed, where possible, to benefit wildlife. Range structures will be designed to minimize adverse wildlife impacts.

Permanent roads and special uses may be permitted. Short-term or temporary roads are obliterated and rehabilitated within one year after intended use. Motorized use is managed as appropriate to prevent unacceptable stress on big-game animals during the primary use season.

Specific cover opening ratios, opening width, and stand design are maintained in pinyon-juniper chaining areas.

(EMPHASIS IS ON GENERAL BIG-GAME WINTER RANGE)

MANAGEMENT UNIT DIRECTION GWR

MANAGEMENT REQUIREMENTS

MANAGEMENT ACTIVITIES

GENERAL DIRECTION

STANDARDS & GUIDELINES

VISUAL RESOURCE MANAGEMENT (A04)

01 Meet Forest Direction Visual Quality Objectives except where habitat improvement activities occur. Treated sites must be returned to the planned VQO within 10 years.

DISPERSED RECREATION MANAGEMENT (A14 AND 15)

01 Manage recreational activities so they do not conflict with wildlife use of habitat.

- a. Restrict snowmobile use to designated routes if conflicts with wintering animals occur.
- b. Restrict vehicular travel on non-roaded areas if conflicts with habitat needs develop.

WILDLIFE AND FISH RESOURCE MANAGEMENT (C01)

01 Provide big-game habitat needed to help achieve the big-game population objectives identified in interagency herd unit plans.

- a. Maintain at least 30 percent of shrub plants in mature age, and at least 10 percent in young age classes.
- b. Maintain at least two shrub species on sites capable of growing two or more shrub species.
- c. Maintain habitat capability at a level at least 50 percent of potential for big game.
- d. Activities or uses which induce human activity within the area may be modified, rescheduled, or denied if the combination of accumulated impacts on vegetation, behavior, and/or mitigation reduce effective habitat use below 80 percent of base year 1980 capacity of this unit.

RANGE RESOURCE MANAGEMENT (D02)

01 Manage livestock grazing to complement big-game habitat.

- a. Establish proper use criteria that should maintain or enhance habitat for wildlife. Limit livestock use to this level.

MINERALS MANAGEMENT GENERAL (G00)

01 Modify, delay, or deny mineral leasing, exploration, and/or surface occupancy, where applicable, if they cause unacceptable stress on big game or unmitigated damage to their habitat.

- a. Prohibit activities during critical periods of big-game use.
- b. Approved activities must be short-term and prompt reclamation must be assured.

MANAGEMENT
ACTIVITIES

GENERAL
DIRECTION

STANDARDS &
GUIDELINES

SPECIAL USE
MANAGEMENT NON-
RECREATION)
(J01)

01 As appropriate, permit special uses if they do not conflict with big-game wintering.

RIGHTS-OF-WAY
AND LAND
ADJUSTMENTS
(J02, 13, 15,
16, 17, AND 18)

01 Acquire private lands or obtain wildlife habitat easements needed for big-game winter range.

TRANSPORTATION
SYSTEM
MANAGEMENT
(101 AND 20)

01 Allow new roads to meet management needs. Obliterate and rehabilitate temporary roads within one season after planned use ends.

a. New roads may be constructed when;

- (1) There is no acceptable alternative to build the road outside the unit, and the road is essential to achieve priority goals and objectives of contiguous management units, or to provide access to land administered by other government agencies or to contiguous private land.
- (2) Winter road use will not significantly disturb wintering big-game animals.
- (3) Roads cross the winter range in the minimum distance feasible to facilitate the needed use.

02 Close and/or restrict road use as appropriate to reduce stress on big-game animals.

III-63

MANAGEMENT PRESCRIPTION RNC
(EMPHASIS IS ON PRODUCTION OF FORAGE)

Emphasis is on production of forage and cover for domestic livestock and wildlife. Intensive grazing management systems are generally favored. Range condition is improved or maintained through range and/or silvicultural improvement practices, livestock management through a grazing system, and coordination with other resource activities. Some periodic heavy forage utilization may occur. Opportunities for investments in structural and non-structural improvements to increase forage production is moderate to high.

Nonstructural restoration practices include a full spectrum of treatments such as plowing, seeding, cutting, chaining, burning, spraying with herbicides, crushing, pitting, furrowing, and fertilization.

Investments are made in compatible resource activities. Dispersed recreation opportunities vary between semiprimitive nonmotorized and roaded natural appearing. Management activities are evident, but harmonize with the natural setting.

(EMPHASIS IS ON PRODUCTION OF FORAGE)

MANAGEMENT UNIT DIRECTION RNC

MANAGEMENT REQUIREMENTS

MANAGEMENT ACTIVITIES

GENERAL DIRECTION

STANDARDS & GUIDELINES

DISPERSED RECREATION MANAGEMENT (A14 AND 15)

- 01 Semiprimitive nonmotorized, semiprimitive motorized, roaded natural and rural recreation opportunities may be provided.
- 02 Temporarily close dispersed area camping sites to recreation use where resource damage is occurring or management of livestock is seriously impaired.

- a. Specify vehicular travel restrictions if any based on vehicular travel use management (FSM 2355).
- a. Where soil erosion and/or compaction inhibits plant growth and ground cover is less than 30 percent.
- b. Where dispersed camping prevents livestock watering and/or range use.

WILDLIFE AND FISH RESOURCE MANAGEMENT (C01)

- 01 Balance wildlife use with grazing capacities and habitat.

RANGE RESOURCE MANAGEMENT (D02)

- 01 Improve or maintain range condition to fair or better.
- 02 Balance livestock obligations and use with grazing capacities.

- a. FSH 2209.15.
- a. Firm up capacities by evaluation methods identified in allotment management plans or if not completed by standards specified in FSH 2209.21 and/or increasing forage production to meet obligations through range improvements.

TIMBER RESOURCE MANAGEMENT (E00)

- 01 Maintain and manage non-commercial forested inclusions to provide a high level of forage production, wildlife habitat, and diversity.
- 02 Use mechanical, chemical, or prescribed fire to alter timber stands and increase herbaceous yield or cover in areas where harvest methods are impractical or demand does not exist.
- 03 Manage aspen stands or mixed fir habitat types at the appropriate ecological stage that provides high herbaceous yield and cover.

MANAGEMENT UNIT DIRECTION RNG

MANAGEMENT
ACTIVITIES

GENERAL
DIRECTION

STANDARDS &
GUIDELINES

MINERALS
MANAGEMENT
GENERAL
(G00)

- 01 Provide appropriate mitigation measures to assure continued livestock access and use.
- 02 Those authorized to conduct developments will be required to replace losses through appropriate mitigations, where a site-specific development adversely affects long-term production or management.

MANAGEMENT PRESCRIPTION TER
(EMPHASIS IS ON WOOD-FIBER PRODUCTION AND HARVEST)

Emphasis is on management for the production and use of wood-fiber for a variety of wood products. The harvest methods by Forest cover type are single tree and group selection and shelterwood in Englemann spruce-subalpine fir, Douglas-fir, ponderosa pine, mixed conifers, and clearcutting in aspen. Harvesting will be accomplished with methods including cable, conventional crawler tractor, or rubber-tired skidders. Precommercial thinning and intermediate harvests will be used to increase or maintain fiber production.

Dispersed recreation opportunities vary between semiprimitive non-motorized and roaded natural appearing.

Wildlife habitat diversity may be enhanced by vegetative manipulation. Livestock grazing may be permitted. This prescription could alter water yield through vegetation management, as well as decrease evapotranspiration and maximize snow retention in small openings on low energy slopes.

(EMPHASIS IS ON WOOD FIBER PRODUCTION AND HARVEST)

MANAGEMENT UNIT DIRECTION TER

MANAGEMENT REQUIREMENTS

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
DISPERSED RECREATION MANAGEMENT (A14 AND 15)	<p>01 Semiprimitive nonmotorized, semiprimitive motorized, roaded natural and rural recreation opportunities may be provided.</p> <p>02 Prohibit recreation use (including snowmobiles, vehicular travel, cross-country skiing etc.) where needed to protect forest plantations.</p>	
RANGE IMPROVEMENT AND MAINTENANCE (D03, 04, 05 AND 06)	<p>01 Protect regeneration from unacceptable livestock damage.</p> <p>02 Utilize transitory forage that is available where demand exists, and where investments in regeneration can be protected.</p>	<p>a. Proper livestock management methods will be included in allotment management plans and annual operating plans to protect regeneration. Permittes will be held responsible for damages resulting from negligence.</p> <p>a. Vary utilization standards with grazing system and ecological condition. Specify standards in the Allotment Management Plan.</p>
TRANSPORTATION SYSTEM MANAGEMENT (L01 AND 20)	<p>01 Locate, design and construct the minimum Forest Development Road necessary to provide a stable road base to serve short- and long-term timber needs, under the timber sale program.</p> <p>02 To the extent possible, give emphasis to and coordinate road locations for timber sales that will benefit future fuelwood sales and other timber activities.</p>	
INITIAL ATTACK AND FIRE SUPPRESSION (P08)	<p>01 Control wildfires in Engelmann spruce types and in young ponderosa pine stands.</p>	

III-68

MANAGEMENT PRESCRIPTION RPN
(EMPHASIS IS ON RIPARIAN AREA MANAGEMENT - NOT MAPPED)

Emphasis is on management of riparian areas, and all the component ecosystems. These components include the aquatic (including fish) ecosystem, the riparian (characterized by distinct vegetation), and adjacent ecosystems that remain within approximately 100 feet measured horizontally from edge of all perennial streams and springs, and from the shores of lakes and other still water bodies, i.e., from seeps, bogs, and wet meadows. All of the components are managed together as a land unit comprising an integrated riparian area, and not a separate component.

The goals of management are to (1) maintain waterflows to provide free and unbound water within the soil needed to create the distinct vegetative community, (2) provide healthy self-perpetuating plant communities, (3) meet water quality standards, (4) provide habitats for viable populations of wildlife and fish, (5) provide stable stream channels and still water body shorelines, and (6) restore riparian habitats that have been lost through the downcutting of stream channels and wet meadows. The aquatic ecosystem may contain fisheries, habitat improvements, and channel stabilizing facilities that maintain or improve wildlife or fish habitat requirements.

(This Management Unit Is Not Mapped)

(EMPHASIS IS ON RIPARIAN AREA MANAGEMENT)

MANAGEMENT UNIT DIRECTION RPN

MANAGEMENT REQUIREMENTS

MANAGEMENT ACTIVITIES

GENERAL DIRECTION

STANDARDS & GUIDELINES

DISPERSED RECREATION MANAGEMENT (A14 AND 15)

- 01 Semiprimitive nonmotorized, semiprimitive motorized, roaded natural and rural recreation opportunities may be provided.
- 02 Limit use where the riparian area is being unacceptably damaged.

WILDLIFE HABITAT IMPROVEMENT AND MAINTENANCE (002, 04, 05 AND 06)

- 01 Provide habitat diversity through vegetation treatments, and/or structural developments in conjunction with other resource activities, designed to maintain or improve wildlife or fisheries habitat.
- 02 Provide habitat for viable populations of native vertebrate species of fish and wildlife within existing ranges.
- 03 Maintain a current fish habitat inventory in cooperation with State wildlife agencies.
- 04 Provide for instream flows to support a sustained-yield of natural fisheries resources.

RANGE RESOURCE MANAGEMENT (D02)

- 01 Provide for proper stocking and livestock distribution to protect riparian ecosystems.
- 02 Avoid trailing livestock along the length of riparian areas except where existing stock driveways occur. Rehabilitate existing stock driveways where damage is occurring in riparian areas. Relocate them outside riparian unit if possible and when necessary to achieve riparian area goals.

SILVICULTURAL EXAMINATION AND PRESCRIPTION (E03, 06, AND 07)

- 01 Manage forest cover types to perpetuate tree cover and provide healthy stands, high water quality and wildlife and fish habitat.
- 02 Avoid locating log landing and decking areas within the riparian unit.

MANAGEMENT UNIT DIRECTION RPN

MANAGEMENT
ACTIVITIES

GENERAL
DIRECTION

STANDARDS &
GUIDELINES

WATER QUALITY
MANAGEMENT
(F00)

- 01 Vegetate disturbed soils in sites where adverse impacts would occur according to the following priorities:
 - Aquatic ecosystems;
 - Riparian ecosystems; and
 - Riparian areas outside of aquatic and riparian ecosystems.
- 02 Minimize surface disturbing activities that alter vegetative cover, result in stream channel instability or loss of channel cross-sectional areas, or reduce water quality.

RIPARIAN,
FLOOD PLAIN
& WETLANDS
MANAGEMENT
(F00)

- 01 Prior to implementation of project activities, delineate and evaluate riparian areas and or wetlands that may be impacted.
- 02 Obtain 404 permits when needed for proposed activities causing disturbance to flood plains and wetlands.

- a. FSM 2526.
- b. Where site-specific development adversely affects long-term productivity or management, those authorized to conduct development will be required to replace loss through appropriate mitigations.

SOIL & WATER
RESOURCE
IMPROVEMENTS
(F03)

- 01 Prevent or remove unacceptable debris accumulations that reduce stream channel stability and capacity.
- 02 Avoid channelization of natural streams. Where channelization is necessary for flood control or other purposes use stream geometry relationships to reestablish meanders, width/depth ratios, etc. consistent with each major stream type.
- 03 Treat disturbed sites resulting from resource development or use activities, to reduce sediment yields to the natural erosion rates in the shortest possible time.

MANAGEMENT
ACTIVITIES

GENERAL
DIRECTION

STANDARDS &
GUIDELINES

CONTINUATION OF:
SOIL & WATER
RESOURCE
IMPROVEMENTS
(F03)

- 04 Stabilize streambanks which are damaged beyond natural recovery in a reasonable period with appropriate methods or procedures.
- 05 Minimize significant soil compaction and disturbance in riparian ecosystems. Allow use of heavy construction equipment during period when the soil is less susceptible to compaction or rutting.
- 06 Maintain or enhance the long-term productivity of soils within the riparian ecosystem.

MINERALS
MANAGEMENT
GENERAL
(G00)

- 01 Avoid and mitigate detrimental disturbance to the riparian area by mineral activities. Initiate timely and effective rehabilitation of disturbed sites.
- 02 Where possible, locate mineral activities outside the riparian unit.

- a. Locate drill sites and mud pits outside the riparian area unless alternate locations have been reviewed and rejected. If location is unavoidable, seal and dike all pits to prevent leakage.
- b. Reclaim disturbed site as soon as possible after use is discontinued.
- c. Revegetate or establish vegetative cover to levels that will provide soil surface protection and prevent erosion.
- d. Provide surface protection from storm-flow and snowmelt runoff events.
- a. Permit diversion activities within the riparian unit where technology is available to maintain water quality standards, sediment threshold limits, instream flow standards, vegetation, and fish and wildlife cover.

- 03 Design and locate settling ponds to prevent washout during high water. Locate settling ponds outside of the active channel. Restore channel changes to hydraulic geometry standards for each stream type.

MANAGEMENT
ACTIVITIES

GENERAL
DIRECTION

STANDARDS &
GUIDELINES

SPECIAL USE
MANAGEMENT (NON-
RECREATION)
(J01)

- 01 Permit special uses which are complementary and compatible with the kind and level of development within the unit.

TRANSPORTATION
SYSTEM
MANAGEMENT
(I01 AND 20)

- 01 Locate new roads and trails outside riparian areas unless alternative routes have been reviewed and rejected.

a. Do not parallel streams when road location must occur in riparian areas except where absolutely necessary. Cross streams at points that best complement riparian and aquatic ecosystems as well as road and stream geometry. Locate crossings (fords) at points of low bank slope and firm surfaces.

- 02 Minimize detrimental disturbance to the riparian unit by construction and maintenance activities. Initiate timely and effective rehabilitation of disturbed sites and restore riparian areas so that a vegetation ground cover or suitable substitute protects the soil from erosion and prevents increased sediment yield.

INITIAL ATTACK
AND FIRE
SUPPRESSION
(P08)

- 01 Restrict mechanical fireline construction.

a. Restrict heavy equipment line construction in riparian areas. Avoid aquatic and riparian ecosystems with this equipment.

III-73

MANAGEMENT PRESCRIPTION MWS
(EMPHASIS IS ON MUNICIPAL WATER SUPPLY)

Management emphasis is on producing water for municipal uses. These units include portions of some select watershed areas and some springs or other water sources dedicated to the production of municipal water. The unit(s) is managed to maintain the hydrologic integrity of the watershed or water source for the protection of water quality and quantity. On these units, maximizing herbaceous ground cover and minimizing surface disturbing activities is the overall direction. Some limited land uses or activities that do not degrade the water quality or disrupt the watershed or source areas may occur.

III-74

(EMPHASIS IS ON MUNICIPAL WATER SUPPLY)

MANAGEMENT UNIT DIRECTION MWS

MANAGEMENT REQUIREMENTS

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
DISPERSED RECREATION MANAGEMENT (A14 AND 15)	01 Close all or portions of the unit to vehicular travel except as authorized. 02 Allow light dispersed recreation, such as hiking, but not overnight camping.	a. Require compliance with the "Pack In, Pack Out" policy.
WILDLIFE HABITAT IMPROVEMENT AND MAINTENANCE (C02, 04, 05 AND 06)	01 Permanent wildlife openings or other habitat improvements may be installed, provided they can be done without adversely affecting water quality.	
RANGE RESOURCE MANAGEMENT (D02)	01 These units may be closed to livestock grazing.	
TIMBER RESOURCE MANAGEMENT (E00)	01 Provide for harvest of forest products when the activity would improve water production and/or does not adversely affect water quality.	
MUNICIPAL WATERSHED MANAGEMENT (F00)	01 Prolong stream flow where feasible to increase water yields.	
GEOLOGIC RESOURCES MANAGEMENT (G00)	01 Design activities to minimize negative or emphasize positive effects on geologic features concerning recharge areas, depth and extent of the water resource, and surface use in the management of municipal water systems.	

III-75

MANAGEMENT
ACTIVITIES

GENERAL
DIRECTION

STANDARDS &
GUIDELINES

MINING LAW
COMPLIANCE AND
ADMINISTRATION
(LOCATALES)
(G01)

01 Avoid or minimize and mitigate detrimental disturbance to the MWS unit by mineral activities. Initiate timely and effective rehabilitation of disturbed sites.

MINERALS
MANAGEMENT
LEASEABLES
(G02 TO 07)

01 Allow mineral leasing where it has been determined that stipulated methods of mining will not affect the watershed values to any significant degree.

02 Allow oil and gas leasing where appropriate using the "Controlled or Limited Surface Use" stipulation which allows uses within specific areas of the lease to be strictly controlled or surface use entirely excluded as necessary.

SPECIAL USE
MANAGEMENT (NON-
RECREATION)
(J01)

01 Permit only those special uses that will not impair water quality or quantity.

TRANSPORTATION
SYSTEM
MANAGEMENT
(I01 AND 20)

01 Allow new roads only if needed to meet MWS management emphasis or temporary roads to meet limited resource needs. Provide erosion protection on temporary roads before each winter season.

9/-III

MANAGEMENT PRESCRIPTION WPE
(EMPHASIS IS ON WATERSHED PROTECTION/IMPROVEMENT)

Management emphasis is for watershed protection and improvement in areas where watershed treatments (i.e., contour trenching and furrowing) have been, or should be, applied, and where other use restrictions are implemented to protect on-site and downstream values from flooding and sedimentation.

On completed watershed projects where grazing is restricted, maintaining sufficient ground cover and minimizing surface disturbing activities will be the general management objective. Investments to protect and maintain past watershed projects will be made. Other uses and activities that do not damage the watershed will be permitted.

On areas in the 10-year watershed program where the surface cover is inadequate to protect the soil and results in excessive soil erosion rates, emphasis is placed on management practices and restoration projects which increase vegetative cover and control surface runoff. Priorities for watershed improvement should be determined through the Forest's Watershed Improvement Needs Inventory (WINI) and Evaluation Process.

Also included, but not mapped, are some areas that have received damage by landslide and flood events. Units receiving damage by such events should be entered on the Watershed Improvement Needs Inventory list and evaluated against all other potential projects for priority of treatment.

(EMPHASIS IS ON WATERSHED PROTECTION/IMPROVEMENT)

MANAGEMENT UNIT DIRECTION WPE

MANAGEMENT REQUIREMENTS

MANAGEMENT ACTIVITIES

GENERAL DIRECTION

STANDARDS & GUIDELINES

VISUAL RESOURCE MANAGEMENT (A04)

- 01 Short-term VQO is rehabilitation, in the long term, it should meet the adopted VQO.

DISPERSED RECREATION MANAGEMENT (A14 AND 15)

- 01 Provide for current recreation uses that do not conflict with watershed improvement objectives.
- 02 Close treated or proposed watershed improvement areas to vehicular travel (except over snow).

- a. Close to motorized vehicles as needed.
- b. On units where structural watershed improvements have been made, vehicular travel use will be restricted (except over snow travel).

WILDLIFE HABITAT IMPROVEMENT AND MAINTENANCE (C02, 04, 05 AND 06)

- 01 Provide big-game forage and habitat needs through manipulation of habitat or wildlife structures providing they do not result in damage to the watershed.

RANGE RESOURCE MANAGEMENT (D02)

- 01 Prohibit livestock use on areas treated for watershed improvement until vegetation has become successfully established and watershed improvement objectives have been met.
- 02 Restrict livestock use on units identified as having excessive soil erosion.

- a. Determine suitability for use through Interdisciplinary team evaluation.

- a. Sites exceeding soil loss tolerance value as determined using the universal soil loss equation as modified by the USFS, and having a downward soil trend as determined by range analysis procedures (R-4 Handbook 2209.20).

- 03 Manage grazing, where authorized, to maintain or improve vegetative cover.

SOIL & WATER RESOURCE IMPROVEMENTS (F03)

- 01 Rehabilitate excessively eroding sites by applying the appropriate watershed improvement practices.

- a. Base priorities on Watershed Improvement Need Inventory (WINI) and Forest evaluation process.

MANAGEMENT UNIT DIRECTION WPE

MANAGEMENT
ACTIVITIES

GENERAL
DIRECTION

STANDARDS &
GUIDELINES

SOIL & WATER
RESOURCE
IMPROVEMENT
MAINTENANCE
(F08)

01 Maintain completed watershed improvement projects until project objectives have been obtained.

a. FSM 2512.04 and Forest Supplement No. 4.

MINERALS
MANAGEMENT
GENERAL
(G00)

01 Restore structural watershed improvements impacted by minerals activities, where appropriate.

SPECIAL USE
MANAGEMENT (NON-
RECREATION)
(J01)

01 Permit special uses which are compatible with the objectives of the unit, and allow appropriate motorized access.

02 Structural watershed improvements damaged by surface disturbing activities will be rehabilitated.

III-76

MANAGEMENT PRESCRIPTION MMA
(EMPHASIS IS ON LEASABLE MINERALS DEVELOPMENT)

Management emphasis is on making land surface available for existing and potential major mineral developments. This prescription is applied where the land surface is or will be used for facilities needed for the extraction of leasable minerals over an extended period. The areas associated with known, potential, development sites are included in this unit. Additional areas may be added to this unit as mines or fields are located and developed. As the developments are removed and restoration is completed, these areas may be changed to other appropriate management units.

In units where mineral development is pending, renewable resource activities strive to be compatible with the management goals of adjacent management units. Long-term investments, such as timber planting, generally are not made. However, short-term investments, such as range and wildlife revegetation projects, may be made on these units.

(EMPHASIS IS ON LEASABLE MINERAL DEVELOPMENT)

MANAGEMENT UNIT DIRECTION MMA

MANAGEMENT REQUIREMENTS

MANAGEMENT ACTIVITIES

GENERAL DIRECTION

STANDARDS & GUIDELINES

- | | |
|--|--|
| <p>VISUAL RESOURCE
MANAGEMENT
(A04)</p> | <p>01 VQO is modification, except after dark the VQO may be maximum modification owing to artificial lighting.</p> |
| <p>DISPERSED
RECREATION
MANAGEMENT
(A14 AND 15)</p> | <p>01 Manage dispersed recreation opportunities:
 (1) On potential MMA units consistent or compatible with prescriptions from adjacent management units;
 (2) On existing MMA units to avoid conflicts with mineral activities and provide for public safety.</p> |
| <p>WILDLIFE
HABITAT
IMPROVEMENT AND
MAINTENANCE
(C02, 04, 05
AND 06)</p> | <p>01 Manage to the extent possible potential or existing long-term impacts on potential or existing units consistent or compatible with wildlife and fish habitat prescriptions from adjacent management units.</p> |
| <p>RANGE RESOURCE
MANAGEMENT
(D02)</p> | <p>01 Manage the forage resource on potential units and existing units consistent or compatible with range prescriptions from adjacent management units. On existing units, manage forage with emphasis on establishment of vegetative cover and long range rehabilitation to support appropriate range prescriptions.</p> |
| <p>SILVICULTURAL
EXAMINATION
AND
PRESCRIPTION
(E03, 06,
AND 07)</p> | <p>01 On potential units manage forest cover types consistent or compatible with prescription from adjacent management units unless a specific use requires special forest cover management.</p> <p>02 Maintain forest cover types on undisturbed sites with emphasis on long range establishment of stands compatible with adjacent management units. As appropriate, rehabilitate disturbed lands using forest cover types.</p> <p>03 Utilize forest products through both commercial and noncommercial methods.</p> |

MANAGEMENT
ACTIVITIES

GENERAL
DIRECTION

STANDARDS &
GUIDELINES

MINERALS
MANAGEMENT
LEASABLES
(G02 TO 07)

- 01 Coordinate the various leasable mineral activities to minimize or eliminate conflicts.
- 02 Upon completion of the planned surface use, restore disturbed sites to their predisturbed conditions unless otherwise directed in the document authorizing the use.

SPECIAL USE
MANAGEMENT (NON-
RECREATION)
(J01)

- 01 Coordinate developments that may conflict with the intended purpose of existing or potential units to minimize or eliminate the conflict.
- 02 Issue special-use permits for off-lease facilities consistent with policy and guidelines.

TRANSPORTATION
SYSTEM
MANAGEMENT
(L01 AND 20)

- 01 Reduce or remove transportation facilities to a kind and standard compatible with the transportation section of the Forest Plan when mineral activity is complete and the unit is rehabilitated.

MANAGEMENT PRESCRIPTION RPI

(EMPHASIS IS ON RESEARCH, PROTECTION, & INTERPRETATION OF LANDS & RESOURCES)

Management emphasis for these units is to manage unique ecological, geological, paleontological, archeological, or historical sites or features of the Forest for research, protection, and/or interpretation of land and resources.

Units with an interpretive emphasis are made available for their general use and enjoyment by the public. The objective is to protect the features in their current and/or restored condition while making them available for study and viewing. Other resource use may be made of these units as long as they do not conflict with the purpose for which they exist. Activities that might cause impairment or occupancy of the unit for any reason other than interpretive are usually prohibited. This interpretive or viewing emphasis include sites such as The Grove of Aspen Giants, Pinhook Battleground Historical Site, Scad Valley Botanical (Proposed), World Record Pinyon Pine, Hammond Canyon, and the Great Basin Experimental Range.

The protective emphasis units are set aside from other uses for protection of the specific features that exist and to maintain as much as possible their near natural conditions (unmodified by man) so long-term changes can be monitored.

The objective is on protection, research, study, observations, monitoring and educational activities that are non-destructive and non-manipulative. In Research Natural Areas unmodified conditions are maintained as a source to compare with manipulated conditions outside of these units. Protected units that are designed normally restrict grazing by domestic livestock. Further, no timber harvest, recreation facilities, roads, trails (except for research or study purposes), water impoundment structures, special uses, surface occupancy for mining of hard rock or leasable minerals, or administrative structures (except for that needed for research or protection purposes) will be authorized. Facilities needed to protect the unit from other uses, such as fences, will be permitted. Designated areas on the Forest with this emphasis include: Elk Knoll Research Natural Area; proposed Research Natural Areas (RNA's): (1) Nelson Mountain, (2) Cliff Dwellers Pasture, and (3) Mount Peale, pending further study as to their suitability as RNA's; and specific unique sites (unmapped) of ecological, archeological, paleontological, unique rare plant fossils, etc. Proposed Research Natural Areas that are not selected as as RNA's will be incorporated into the surrounding management unit.

(Research, Protection, & Interpretation Units may or may not be mapped depending on their need for protection.)

(EMPHASIS IS ON RESEARCH, PROTECTION, & INTERPRETATION OF LANDS & RESOURCES)

MANAGEMENT UNIT DIRECTION RPI

MANAGEMENT REQUIREMENTS

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
CULTURAL RESOURCE MANAGEMENT (A02)	01 Manage cultural, historic, and paleontologic resources to allow research and/or interpretive activities, when possible, while protecting significant attributes of units from natural or human caused degradation.	a. FSM 2361 and FSM 2726.
VISUAL RESOURCE MANAGEMENT (A04)	01 The VQO on all units is generally preservation.	
RECREATION SITE CONSTRUCTION AND REHABILITATION (A05 AND 06)	01 Permit, as appropriate, construction of developed recreation or interpretive facilities.	a. FSM 2361.
DISPERSED RECREATION MANAGEMENT (A14 AND 15)	01 Semiprimitive nonmotorized, semiprimitive motorized, roaded natural and rural recreation opportunities may be provided.	a. Prohibit or restrict motorized vehicle use as appropriate.
		b. Limit or restrict camping in existing or proposed units as necessary.
	02 Provide, as appropriate, signing for interpretation and protection of specific Special Interest Areas.	
WILDLIFE HABITAT IMPROVEMENT AND MAINTENANCE (002, 04, 05 AND 06)	01 Prohibit any direct wildlife habitat manipulation that will detract from those values for which the unit is established.	
RANGE RESOURCE MANAGEMENT (D02)	01 Protect these areas from livestock use unless the objectives for the RPI unit allows grazing use.	a. No livestock grazing is permitted in Research Natural Areas.

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
SILVICULTURAL EXAMINATION AND PRESCRIPTION (E03, 06, AND 07)	01 Prohibit any timber management activities that would impair research, educational values, or otherwise reduce the value of the unit.	
SOIL RESOURCE MANAGEMENT (F00)	01 Manage soil and water resource activities to be compatible with the values of the unit. 02 Allow instrumentation to measure precipitation and climate variables needed for research study purposes.	
SOIL & WATER RESOURCE IMPROVEMENTS (F03)	01 Prohibit water developments or watershed protection activities that would detract from the purpose for which the unit was established.	
MINERALS MANAGEMENT GENERAL (G00)	01 Manage mineral activities to be compatible with RPI unit objectives.	
MINING LAW COMPLIANCE AND ADMINISTRATION (LOCATABLES) (G01)	01 Allow mineral activities where it has been determined that stipulated methods of extraction will not affect the RPI unit values.	
MINERALS MANAGEMENT LEASEABLES (G02 TO 07)	01 Allow oil and gas leasing where appropriate using the "Controlled or Limited Surface Use" stipulation which allows uses within specific areas of the lease to be strictly controlled or surface use entirely excluded as necessary.	a. Prohibit seismic or prospecting activities in Research Natural Areas.
SPECIAL USE MANAGEMENT (NON- RECREATION) (J01)	01 Use special use permits or cooperative agreements as appropriate to authorize and document scientific activity.	a. FSM 4063.37 and FSM 2720.

MANAGEMENT
ACTIVITIES

GENERAL
DIRECTION

STANDARDS &
GUIDELINES

CONTINUATION OF:
SPECIAL USE
MANAGEMENT (NON-
RECREATION)
(J01)

- 02 Permit use as appropriate for scientific and educational purposes.
- 03 Discourage or prohibit any uses which contribute to impairment of the values for which the unit is established.

WITHDRAWALS,
MODIFICATIONS
AND REVOCATIONS
(J04)

- 02 Withdraw the RPI unit from mineral entry where needed to protect the unit values.

PROPERTY
BOUNDARY
LOCATION
(J06)

- 01 Mark boundaries where appropriate to ensure integrity of the unit.

TRANSPORTATION
SYSTEM
MANAGEMENT
(I01 AND 20)

- 01 Generally, transportation system facilities are permitted where the facility is compatible with the purpose for which the unit is established.

a. Prohibit roads in Research Natural Areas.

TRAIL
SYSTEM
MANAGEMENT
(I23)

- 01 Where appropriate, develop trails for interpretation and/or self study.
- 02 Limit trails in RNA's to those needed for access to conduct research and for educational purposes.

INITIAL ATTACK
AND FIRE
SUPPRESSION
(P08)

- 01 Take appropriate suppression action that meets the management objectives for the area, using confinement, containment, and/or control suppression strategies.

LAW ENFORCEMENT
(P24 TO 27)

- 01 Use special closures when necessary to protect the unit or features from actual or potential damage.

a. Issue closure order under provisions of 36 CFR 261.50 (FSM 4063.3).

MANAGEMENT
ACTIVITIES

GENERAL
DIRECTION

STANDARDS &
GUIDELINES

FOREST AND RANGE
RESEARCH
(D10, E33, F19)

- 01 Cooperate with the Intermountain Forest and Range
Experiment Station to accomplish research objectives.
- 02 Protect surface resource conditions to prevent altera-
tion of research projects.

III-87

MANAGEMENT PRESCRIPTION DCW
(EMPHASIS IS ON DARK CANYON WILDERNESS MANAGEMENT)

Emphasis is for the protection of the wilderness character and perpetuation of essentially pristine biophysical conditions inside the boundaries of Dark Canyon Wilderness. Human travel is principally on trails within the wilderness, or on the four-wheel drive access way within the Peavine Corridor which is an intrusion into the unit. Within and adjacent to the corridor, the recreation experience would be semiprimitive motorized. The balance of the unit should provide the opportunity for primitive recreation experience. Designated campsites may display evidence of recurring use. However, use would be within acceptable environmental limits.

Appropriate levels of domestic livestock grazing are authorized on suitable grazing lands, and appropriate facilities for the management of livestock may be authorized. Scientific practices utilizing non-mechanized equipment may be authorized for up to one season. Significant archeologic and historic sites would be enhanced, restricted, or protected from human activities and where feasible from natural deterioration.

The fact that nonwilderness activities or uses can be seen or heard from areas within this wilderness shall not, of itself, preclude such activities or uses up to the boundary of the wilderness area.

(EMPHASIS IS ON DARK CANYON WILDERNESS MANAGEMENT)

MANAGEMENT UNIT DIRECTION DCW

MANAGEMENT REQUIREMENTS

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
CULTURAL RESOURCE MANAGEMENT (A02)	01 Do not provide interpretive facilities at cultural, historic or paleontologic sites. Where appropriate, restore or enhance these resources for recreation, scenic, scientific, educational, and conservation purposes.	
DISPERSED RECREATION MANAGEMENT (A14 AND 15)	01 Emphasize primitive recreation opportunities for isolation, solitude, and self-reliance. 02 Manage use to provide a low incidence of contact with other groups or individuals and to prevent unacceptable changes to the biophysical resources.	a. Use and capacity levels are: Trail encounters are usually less than six other parties per day. Campsite encounters are usually less than three other parties per day.
	03 Restrict use on and/or rehabilitate dispersed sites where unacceptable environmental damage is occurring.	a. Close sites that cannot be maintained in Code-A-Site categories light to moderate.
RECREATION MANAGEMENT (PRIVATE AND OTHER PUBLIC SECTOR) (A16)	01 Manage outfitter-guide operations in harmony with activities of non-guided visitors and include them in calculations of level-of-use capacities. Permit camping only in sites specified in outfitter-guide permits.	
WILDERNESS AREA MANAGEMENT (B02)	01 Utilize a permit system as necessary to manage use levels and patterns to prevent resource damage or degradation of wilderness character. 02 Control use near seeps and springs or other water sources to maintain water quality and quantity.	

III-11

MANAGEMENT
ACTIVITIES

GENERAL
DIRECTION

STANDARDS &
GUIDELINES

WILDLIFE RESOURCE MANAGEMENT (C01) 01 Forest-wide habitat prescriptions for management indicator and vertebrate wildlife species may not necessarily be met.

RANGE RESOURCE MANAGEMENT (D02) 01 Manage forage uses and limit range improvements to be compatible with wilderness character.

SOIL & WATER RESOURCE IMPROVEMENTS (F03) 01 Where it will not impair the wilderness character, restore soil disturbances caused by human use (past mining, trail construction and use, camping, etc.) to soil loss tolerance levels commensurate with the natural ecological processes for treatment area.

a. Maintain sites in Code-A-Site categories light to moderate.

MINERALS MANAGEMENT GENERAL (G00) 01 Manage mineral activities in accordance with the 1964 Wilderness Act and Utah Wilderness Act of 1984.

SPECIAL USE MANAGEMENT (NON-RECREATION) (J01) 01 Permit only those uses authorized by wilderness legislation, which cannot be reasonably met on non-wilderness lands.

TRANSPORTATION SYSTEM MANAGEMENT (I01 AND 20) 01 Convert roads not needed for authorized activities to trails, or restore the road area to the predisturbed conditions.

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
CONTINUATION OF: TRANSPORTATION SYSTEM MANAGEMENT (101 AND 20)	02 Construct or reconstruct and maintain trails only when needed to meet wilderness objectives.	a. FSH 2309.18 and FSM 2320.
	03 Provide low visual impact signs at trail terminals and trail junctions only. Include only mileage, trail identification, and identification of terminal points.	a. FSH 7109.11A and 11B, FSM 2380 and FSH 2320. b. Use untreated routed wood signs on butt treated posts.
FA&O CONSTRUCTION RECONSTRUCTION AND MAINTENANCE (124 AND 25)	01 Maintain and/or construct only administrative facilities or structures needed for management of wilderness.	
INITIAL ATTACK AND FIRE SUPPRESSION (P08)	01 Use containment, confinement, or control on human unplanned ignitions at all intensity levels.	
	02 Manage natural unplanned ignitions to allow fire to play a more natural role in maintaining ecosystems.	
AIR RESOURCE MANAGEMENT (P16)	01 Protect air quality values from adverse effects from air pollution.	a. FSM 2120.
NOISE ABATEMENT (P23)	01 Control man-caused noise levels below that which will provide suitable wilderness opportunities.	a. Man-caused noise levels at use sites generally will be restricted to 30 decibels or less except for noises generated by normal conservation and primitive recreation activities.
INSECT AND DISEASE MANAGEMENT/ SUPPRESSION (P35)	01 Control natural insect or disease outbreaks in wilderness only when justified by predicted loss of resource values outside of wilderness.	a. FSM 3430.

MANAGEMENT PRESCRIPTION SLD
(EMPHASIS IS ON SPECIAL LAND DESIGNATION)

Management emphasis is on making lands available for existing and potential specialized uses. Sites that may be considered for application of this prescription include Ranger or Guard Stations and other administrative sites, electronic sites, and similar special land uses.

The specific direction, Standards and Guidelines are specified in the documents that establish each specific area. Generally, other resource development and use activities within these units strive to be compatible with the management goals of the adjacent management units. However, this is often limited by the special activity or use authorized on the unit.

(EMPHASIS IS ON MANAGEMENT OF SPECIAL LAND DESIGNATIONS)

MANAGEMENT UNIT DIRECTION SLD

MANAGEMENT REQUIREMENTS

MANAGEMENT ACTIVITIES

GENERAL DIRECTION

STANDARDS & GUIDELINES

VISUAL RESOURCE MANAGEMENT (A04)	01	Manage generally for a partial retention VQ0.
DISPERSED RECREATION MANAGEMENT (A14 AND 15)	01	Manage dispersed recreation opportunities: A. On inventoried units, consistent or compatible with prescriptions from adjacent management units; B. On existing units, to avoid conflicts with the authorized special use activities.
WILDLIFE HABITAT IMPROVEMENT AND MAINTENANCE (C02, 04, 05 AND 06)	01	Manage, to the extent possible, potential or existing long-term impacts on potential or existing units consistent or compatible with wildlife and fish habitat prescriptions from adjacent management units.
RANGE RESOURCE MANAGEMENT (D02)	01	Manage the forage resource on potential units and existing units consistent or compatible with range pre- scriptions from adjacent management units. On existing units manage forage with emphasis on establishment of vegetative cover and long range rehabilitation to support appropriate range prescriptions.
SILVICULTURAL PRESCRIPTIONS (E03, 06, AND 07)	01	On potential units manage forest cover types con- sistent or compatible with prescription from adjacent management units unless a specific use requires special forest cover management.
MINING LAW COMPLIANCE AND ADMINISTRATION (LOCATABLES) (G01)	01	Manage mineral activities to be compatible with the authorized use.

MANAGEMENT
ACTIVITIES

GENERAL
DIRECTION

STANDARDS &
GUIDELINES

MINERALS
MANAGEMENT
LEASES
(G02 TO 07)

- 01 Allow mineral leasing where it has been determined that stipulated methods of mining will not affect the authorized use to any significant degree.
- 02 Allow oil and gas leasing where appropriate using the "Controlled or Limited Surface Use" stipulation which allows uses within specific areas of the lease to be strictly controlled or surface use entirely excluded as necessary.

MINERALS
MANAGEMENT
SALES
(G02 TO 07)

- 01 Close the unit to sale or other use of saleable minerals.

SPECIAL-USE
MANAGEMENT
NONRECREATION
(J01)

- 01 Approve special-use applications for areas adjacent to existing SLD units only when the proposed use is compatible with the purpose and use of the existing unit.

WITHDRAWALS,
MODIFICATIONS
AND REVOCATIONS
(J04)

- 02 Withdraw the unit from mineral entry as needed to assure the authorized use can be continued.

MANAGEMENT PRESCRIPTION UC
(EMPHASIS IS ON LOCATION OF UTILITY CORRIDORS)

Emphasis is on providing transportation corridors for major cross-country pipelines, electrical transmission lines, and telephone lines. Management activities within these linear corridors strive to be compatible with the management goals of the adjacent management units.

III-95

(EMPHASIS IS ON LOCATION AND MANAGEMENT OF UTILITY CORRIDORS)

MANAGEMENT UNIT DIRECTION UC

MANAGEMENT REQUIREMENTS

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
DISPERSED RECREATION MANAGEMENT (A14 AND 15)	01 Manage dispersed recreation opportunities to avoid conflicts with the permitted uses of the unit. 02 Restrict vehicular travel as appropriate.	
WILDLIFE HABITAT IMPROVEMENT AND MAINTENANCE (C02, 04, 05 AND 06)	01 Manage to the extent possible consistent or compatible with wildlife and fish habitat prescriptions from adjacent management units.	
RANGE RESOURCE MANAGEMENT (D02)	01 Manage the forage resource to be compatible with range prescriptions from adjacent management units. Manage forage with emphasis on maintenance or improvement of vegetative cover and long range rehabilitation. 02 Provide special management practices to restrict livestock trailing or bedding along corridors.	
SILVICULTURAL EXAMINATION AND PRESCRIPTION (E03, 06, AND 07)	01 Manage forest cover types to be compatible with prescriptions from adjacent management units unless a specific use requires special forest cover management. 02 Utilize forest products through both commercial and noncommercial methods.	
RIGHTS-OF-WAY AND LAND ADJUSTMENTS (J02, 13, 15, 16, 17, AND 18)	01 Considerations of proposed future corridor designations should follow the process and definitions established in Appendix D of the Forest Plan.	a. Utility corridors are excluded from Wilderness (WDN) and Research Natural Areas. b. Avoid the following management units unless studies indicate that the impact of the corridor can be mitigated: 1. Developed Recreation Sites (DRS).

MANAGEMENT
ACTIVITIES

GENERAL
DIRECTION

STANDARDS &
GUIDELINES

CONTINUATION OF:
RIGHTS-OF-WAY
AND LAND
ADJUSTMENTS
(J02, 13, 15,
16, 17, AND 18)

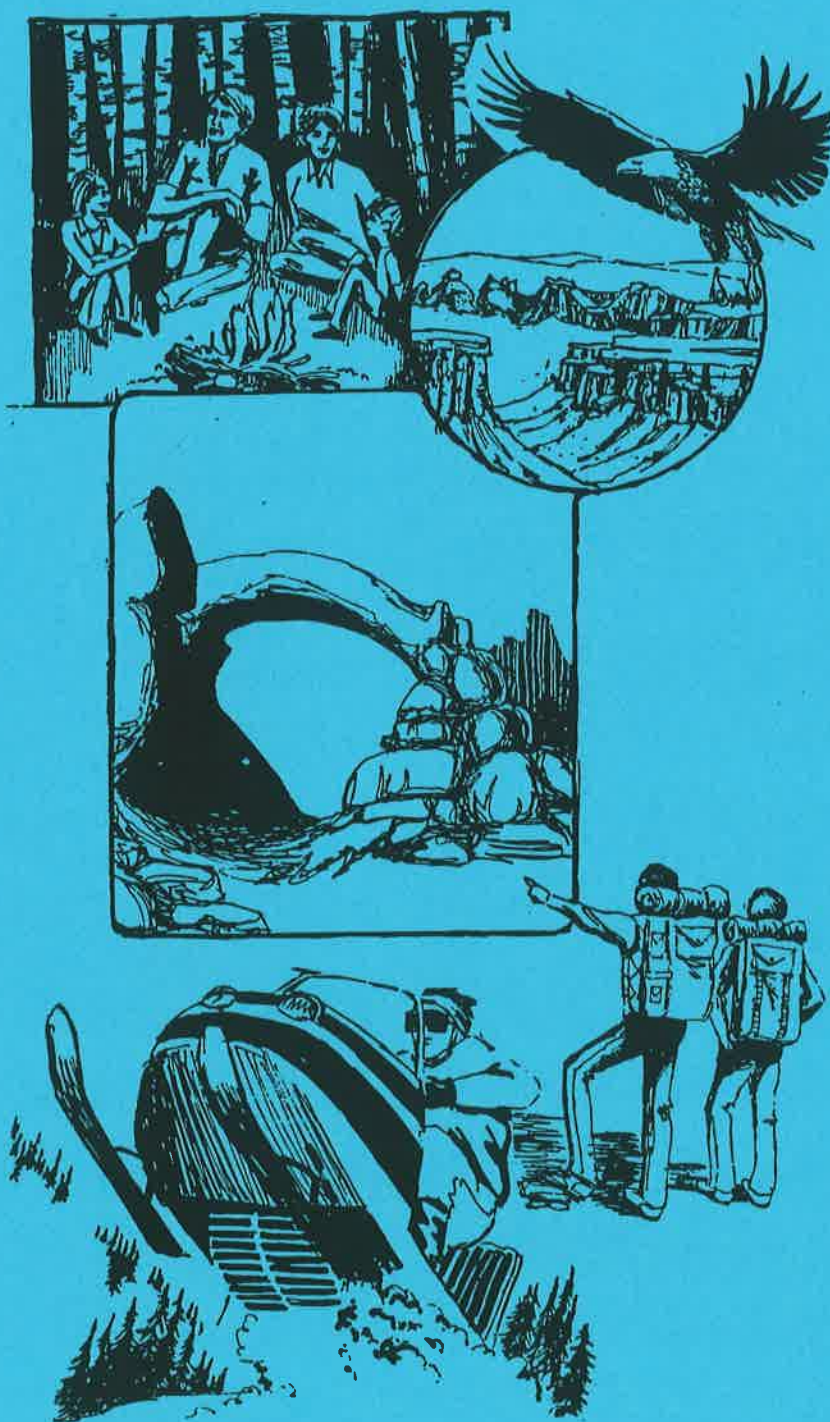
2. Riparian (RPN).
3. Research, Protection, and Interpretation (RPI), and Municipal Water Supply (MWS).
4. Administrative Sites and Special Use (SID).
5. Semiprimitive Recreation (SPR).

c. FSM 1922.

TRANSPORTATION
SYSTEM
MANAGEMENT
(L01 AND 20)

01 Avoid the establishment of service roads for main-
tenance.

CHAPTER IV IMPLEMENTATION OF THE FOREST PLAN



CHAPTER IV IMPLEMENTATION OF THE FOREST PLAN

Implementation Direction

Consistency with Other Management Instruments

During implementation of this Forest Plan, the Manti-LaSal National Forest will be guided by existing and future laws, regulations, policies, and guidelines. The Forest Plan is designed to supplement, not replace, direction from these sources except in specific instances.

This Forest Land and Resource Management Plan supersedes all previous management plans. Outstanding and future permits, contracts, cooperative agreements, Allotment Management Plans, and other instruments for use, development, and occupancy will be brought into conformance as soon as legally and reasonably possible.

Budget Proposals

The Forest Plan provides the management direction for developing multi-year implementation programs. The Forest Plan's scheduled practices, shown in the Forest Activity Schedule (Appendix A), are translated into multi-year program budget proposals which identify the needed expenditures. These processes complement the Forest planning process as vehicles for requesting and allocating the funds needed to carry out the planned management direction. The Forest's proposed annual program budget is the basis for the requested funding. Upon approval of a final budget for the Forest, the Annual Program of Work is finalized and carried out. The accomplishment of the Annual Program is the incremental implementation of the management direction of the Forest Plan.

Environmental Analysis

Analysis of environmental consequences of site-specific actions should be done in conformance with the National Environmental Policy Act (NEPA) of 1969 and implementing regulations (40 CFR 1500-1508). Future environmental analyses associated with the above processes should be tiered to the Forest Plan and EIS. Information appropriate for project-related decisions rather than land use decisions, will normally be utilized in such environmental analysis.

Projects and activities permitted within the Forest Plan should be subjected to NEPA evaluation as they are planned for implementation (Forest Service Manual FSM 1952). If project scoping shows that: (1) the Management Unit Requirements and Standards and Guidelines can be compiled with, and (2) little or no environmental effects are expected beyond those identified and documented in the Forest Plan EIS; the analysis could result in a categorical exclusion. A Decision Notice should be used to document the decision (FSM 1951). If project scoping identifies significant issues or concerns not covered in the Forest Plan, then an Environmental Assessment or an Environmental Impact Statement would be prepared. The project file, with the NEPA evaluation and decision document, should be available for public review, but this will not necessarily be documented in the form of an Environmental Assessment or Environmental Impact Statement.

Monitoring and Evaluation Program

This monitoring and evaluation program is designed to provide feedback to planners and the Forest Supervisor. It will provide Forest Managers with information primarily on Forest Plan implementation and the effects of implementation.

More specifically this program will determine:

- If the Forest is achieving the goals and objectives of the Forest Plan as predicted.
- If the Standards and Guidelines are being applied as specified in the Forest Plan.
- If the effects of implementation are as predicted.
- If the Forest's program and management are resolving the planning issues.
- If the cost of implementation of the Forest Plan and work force needed is as predicted.

The monitoring program that follows (Table IV-1) is comprised of the following components.

1. MIH Code - The numerical identifier of the item to be monitored.
2. Activity, Practice or Effect to be Measured - A specific statement of what will be monitored.
3. Monitoring Technique - A description of the technique and sources of information to be employed. To the extent possible, existing reporting systems and standard methods will be used.
4. Expected Precision - The accuracy of exactness with which data is collected. Precision is qualitatively rated as high, moderate or low.

Expected Reliability - A measure of how accurately the monitoring reflects the situation. A qualitative and class system is used to rate reliability (high, moderate, low).
5. Measurement Frequency - The schedules of samples stated in parts of a year or years. The stated frequencies may vary on a site-specific basis.
6. Reporting Period - The recurring interval between reports summarizing monitoring results for a particular activity or practice. The sampling period should be long enough for specialists to capture significant information. The stated reporting periods may vary on a site-specific basis.
7. Variation Which Would Cause Further Evaluation and/or Change in Management Direction - A statement describing the tolerance limits within which actual performance can vary from predicted performance. When these limits are exceeded, further evaluation is triggered.

In addition to the specific monitoring shown on Table IV-1, the Unit, Functional, or Activity review system (FSM 1440) will be used to assure that the integrity of the Forest Plan and Management Units is maintained.

TABLE IV-1

MONITORING AND EVALUATION PROGRAM

MIR Reference Code	Activity, Practice and/or Effect to be Measured	Data Source and/or Monitoring Technique	Expected Precision/ Reliability	Measurement Frequency	Reporting Period	Variation Which Would Cause Further Evaluation and/or Change in Management Direction
<u>Recreation Resource</u>						
A07	Developed Site Condition	RIM facility condition and routine inspections/analysis.	Data sources and monitoring techniques for all activities are expected to contain sufficient accuracy and confidence from which to make reliable comparisons.	Annually	Annually	Facility condition below RIM condition Class 2.
A07	Vegetative Management	Photo points at selected key sites and/or locations/analysis.		3-5 Years	3-5 Years	Code-A-Site category as specified in individual unit Standards and Guidelines, Chapter III, IMP.
A07	Developed Site Use	<u>Public Sector</u> Recreation Information Management (RIM) Use and benchmark double sampling at indicator sites.		Annually	3 Year	Use is more than ± 10 percent of the Recreation Opportunity Spectrum (ROS) social setting criteria for the ROS Class except as specified in individual unit Standards and Guidelines, Chapter III, IMP.
		<u>Private Sector</u> Permittee occupancy plan/analysis.		Annually	3 Year	Organization site or activity is reported vacant.
A02	Dispersed Campsite Condition	Code-A-Site inspection/analysis.		10% sample triennially of indicator sites.	3 Year	Sites in facility Code-A-Site Category extreme impact will be rehabilitated. Sites that cannot be maintained in facility Code-A-Site categories light, moderate, heavy impact will be closed. See individual unit Standards and Guidelines, Chapter III, IMP.
A08	Dispersed Area Use	RIM use by sampling/evaluation methods including road and trail traffic counters.	Same	Annually	3 Year	Use is more than ± 10 percent of the ROS social setting criteria for the ROS Class except as specified in individual unit Standards and Guidelines, Chapter III, IMP.

TABLE IV-1 (Continued)

MTI Reference Code	Activity, Practice and/or Effect to be Measured	Data Source and/or Monitoring Technique	Expected Precision/ Reliability	Measurement Frequency	Reporting Period	Variation Which Would Cause Further Evaluation and/or Change in Management Direction
<u>Recreation Resource (Continued)</u>						
A02	Trail Condition	Trail condition surveys and project trail inspections/analysis.	Same	5% sample annually of Forest Trail mileage.	3 Year	Departure from Regional Acceptable Work Standards.
A01	Vehicle Travel	Area and travel corridor inspections/analysis.	Same	20% sample annually of vehicular travel use areas.	5 Year	Use conflicts with management goals for individual management units; low- ering of Visual Quality Objective; unacceptable resource damage.
<u>Cultural Resources</u>						
IV-4 A03	Project compliance with Forest Direction manage- ment requirements on ground disturbing projects.	Cultural resource pro- fessional field evalua- tion of randomly selected projects.	Data sources and monitoring tech- niques for all activities are expected to con- tain sufficient	Annually	Annual	Cultural resource properties being damaged/destroyed directly/indirectly by project activities.
A03	Protection of significant cultural resource prop- erties.	Field condition evalua- tion of significant cultural resource prop- erties; use of base year photography and records.	accuracy and con- fidence from which to make reliable comparisons.	Biannual during third and fourth quarters of year.		Cultural resource properties being damaged/destroyed by unauthorized and/ or controllable natural agents.
<u>Visual Resource</u>						
A02	Compliance with Visual Quality Objectives	One sensitivity Level I travel route, use area, or water body inspection and evaluation.	Data sources and monitoring tech- niques for all activities are expected to con-	Annual	Annual	Corridor or area contains more than 5 percent of the view area which does not conform to the Visual Quality Objective.

TABLE IV-1 (Continued)

MIH Reference Code	Activity, Practice and/or Effect to be Measured	Data Source and/or Monitoring Technique	Expected Precision/ Reliability	Measurement Frequency	Reporting Period	Variation Which Would Cause Further Evaluation and/or Change in Management Direction
<u>Visual Resource (Continued)</u>						
		Evaluation of a minimum of 10 percent of the previous year's land, water, and/or vegetation disturbing projects.	tain sufficient accuracy and con- fidence from which to make reliable comparisons.	Annual	2 Year	Failure to meet intended Visual Qual- ity Objective of the management unit.
<u>Wilderness Resource</u>						
B03	Wilderness Campsite Condition	Code-A-Site inspection/ analysis.	Data sources and monitoring tech- niques for all activities are expected to con- tain sufficient accuracy and con- fidence from which to make reliable comparisons.	Annual	3 Year	When sites cannot be maintained in Code-A-Site category moderate impact.
B03	Amount and Distribution of Use	Analysis of trail regis- tration, trail counts and trailhead counts with periodic intensive sample verification.		Annual	3 Year	Use exceeds more than ± 10 percent of the ROS evidence of human criteria for the Primitive ROS Class as described in the Standards and Guidelines, Chap- ter III, IMP.
<u>Wildlife and Fish</u>						
001	MIS Population Trends	Interagency field re- views and/or obtain State record or survey as follows:				
	a. Mule Deer and Elk	Aerial reconnaissance on winter ranges.	M	Annual	5 Year	Twenty percent.
		Browse and pellet tran- sects.	M	Annual	5 Year	Twenty percent change in winter range- land carrying capacity.
		Trend studies.	H	5 Year	5 Year	Ten percent.
		Herd composition.	M	Annual	5 Year	Ten percent.

TABLE IV-1 (Continued)

MIH Reference Code	Activity, Practice and/or Effect to be Measured	Data Source and/or Monitoring Technique	Expected Precision/ Reliability	Measurement Frequency	Reporting Period	Variation Which Would Cause Further Evaluation and/or Change in Management Direction
<u>Wildlife and Fish (Continued)</u>						
9-AI	b. Macroinvertebrates (For baseline sta- tions or as needed for select project activities.)	R-4 GAWS Analysis. (BCI) Biotic Condition Index.	H	5 Year	5 Year	Twenty percent.
		(HCI) Habitat Condition Index.	M/H	5 Year	5 Year	Twenty percent.
	c. Golden Eagle	Active nest site survey.	H	5 Year	5 Year	Twenty percent.
	d. Blue Grouse	Harvest record.	M	Annual	5 Year	Twenty percent.
		Spring territory survey.	M	Annual	5 Year	Twenty-five percent.
		Summer brood counts.	M	Annual	5 Year	Twenty-five percent.
	e. Abert Squirrel	Survey percent ponderosa pine in mature class.	H	10 Year	10 Year	Ten percent.
	CO1 Habitat Improvement Accomplishment	Attainment and wildlife report.	H	Annual	Annual	Twenty percent.
<u>Range</u>						
D07	Allotment Carrying Capacity	Grazing impact and use studies.	H/M	According to approved AMP normally 3 years of data per allotment.	As specified in AMP at the end of evalu- ation period.	Obligation ± 10 percent of carrying capacity.
D07	Long-term Range Trend	Long-term permanently located range trend studies for collection of plant composition, ground cover, and soil stability.	H/M	According to approved AMP.	When Completed	If significant differences in trend occurs.

TABLE IV-1 (Continued)

MIH Reference Code	Activity, Practice and/or Effect to be Measured	Data Source and/or Monitoring Technique	Expected Precision/ Reliability	Measurement Frequency	Reporting Period	Variation Which Would Cause Further Evaluation and/or Change in Management Direction
Range (Continued)						
D02	Range Condition	Range analysis.	M/M	Normally every 20 years from previous	When Completed	When basic data is inadequate for use in making land management planning or range management decisions.
D02	Range Allotment Inspec- tion, Administration and Use Reporting	Allotment field inspec- tion.	M/M	Annual field inspection on 50 percent of the allotments.	Annually	When inspections show a need for closer checks on maintenance and re- pair of range improvements when per- mittees are not following plan of use or allotment management plan.
D03	Range Forage Treatment Practices	Site analysis transects.	M/M	During 2nd and 5th year grow- ing season after project.	After 2nd and 5th year studies.	If major change occurs such as fire, flood, etc., on field inspections show project did not accomplish objec- tives.
Timber						
E03 436	Adequate restocking of lands within 5 years of final harvest.	Silvicultural exam.	H/H	5 Year	Annual	5th Year Stocking Standards FSH 2409.268-5.31-4.
E01 411	Maximum size of opening created by clearcuttings.	Review of timber sale map and document.	H/H	Project Basis	10 Year	Clearcut sizes either restrict timber practices or adversely affect visuals or other resource values.
E02	Harvest practices in retention, partial reten- tion and riparian areas.	Review of timber sale prescriptions and post sale surveys.	M/M	As needed on project basis.	10 Year	Violation of Visual Quality Objectives or riparian area damage.
E06	Timber Sale Action Program	Review 5-Year Action Plan to ascertain that timber sales will be offered on schedule and volume will not exceed 10 year sale quantity.	H/M	Annual	Annual	Timber sales are not progressing as scheduled or annual volume is not being offered or sold if offered.

TABLE IV-1 (Continued)

MIH Reference Code	Activity, Practice and/or Effect to be Measured	Data Source and/or Monitoring Technique	Expected Precision/ Reliability	Measurement Frequency	Reporting Period	Variation Which Would Cause Further Evaluation and/or Change in Management Direction
Timber (Continued)						
E03 E04	Reforestation and timber stand improvement accom- plishment.	Review of T.S.I. and re- forestation accomplishment reports.	H/H	Annual	Annual	Failure to meet targets or accomplish KV needs in timber sale plans.
E41	Fuelwood consumption and supply.	Determine supply by fuels inventories and acres available; demand by permits issued.	H/M	On project basis.	Annual	Supply is not meeting or projected supply not to meet demand within 10 years.
E07	Verify classification of suitable and unsuitable lands.	Examine lands during silvicultural exams, timber sale and inven- tories to ground truth capabilities.	M/M	On project basis as prior to Forest Plan update.	10 Year or Forest Plan update.	If over 10 percent of suitable land was found to be incorrectly identi- fied.
Soils						
F01 250	Soil Survey Activities	Progress reviews, Annual Accomplishment Report, MBO process.	H/H	Annual	Annual	Twenty percent below scheduled comple- tion dates or annual targets.
F09 291	Maintaining Soil Produc- tivity Forest-wide	From Activity Reports and Annual Reviews evaluate management activities and their effects on soil pro- ductivity, both beneficial and adverse. Note all lands taken out of production.	M/M	Annual	Annual	Net decline in total soil productivity maintained as summarized from evalua- tions in Project Impact below.
	Project impact evaluation for any soil disturbing activities that have po- tential of altering soil productivity.	Project monitoring plans. Techniques, if not speci- fied in project monitoring plans, could include measurements of ground cover, soil temperatures,	M/M	Per project monitoring plans or a 10 percent sample of activities.	Annual or per project plan.	Erosion in excess of soil tolerance limits. Other effects that would re- duce soil productivity by 10 percent or more. Effects which differ signifi- cantly from project objectives.

TABLE IV-1 (Continued)

MIH Reference Code	Activity, Practice and/or Effect to be Measured	Data Source and/or Monitoring Technique	Expected Precision/ Reliability	Measurement Frequency	Reporting Period	Variation Which Would Cause Further Evaluation and/or Change in Management Direction
<u>Soils (Continued)</u>						
		nutrient status, degree of soil displacement, and soil structural changes as appropriate. Document field measurements and take photographs.				
291	Sequential photo points of vehicular travel damage.	Standard methods.	M/M	Annual	As Needed	Upon evidence of excessive damage, re- evaluate closure and travel maps.
<u>Water</u>						
F09						
292	Compliance with State Water Quality Standards	Other agencies, private sector, and select Forest Service stations or sites as per approved Water Quality Monitoring Plan.				
	Baseline		M/M	Selected Streams	3-5 Years	If results are in violation of State Water Quality Standards.
	A Sampling of Project Activities		M/M	Before and after pro- ject.	At comple- tion of project.	Reevaluate activity if degradation of water quality occurs.
292	Changes in riparian areas due to land management.	Sequential photo points and site analysis.	H/M	3-5 Years	3-5 Years	Forest Riparian Management Standards.
F03						
264, 265	Watershed Improvement Accomplishment	Annual Attainment Reports.	H	Annual	Annual	Twenty-five percent planned acreage.

TABLE IV-1 (Continued)

MIH Reference Code	Activity, Practice and/or Effect to be Measured	Data Source and/or Monitoring Technique	Expected Precision/ Reliability	Measurement Frequency	Reporting Period	Variation Which Would Cause Further Evaluation and/or Change in Management Direction	
Minerals							
G01,G02	Number of reports prepared.	Records	H/H	Annual	Three times a year.	When the number of projects varies by over 50 percent from what is normally expected for the year.	
G01	Landslide Movement	On-site Inspections	H/H	Variable	Variable	When it has been determined that a slide may cause surface structure damage or be a safety hazard to people.	
G03,G04 G05	Number of plans/leases completed or administered.	Records	H/H	Annual	Three times a year.	When the number of projects varies by over 33 percent from what is normally expected for the year.	
IV-10	G06,G05 G03,G04	Compliance with terms of completed plans.	Environmental Assessments, site inspections.	H/H	Variable according to the project.	Annual	When non-compliance is found for any particular project.
	G01	Subsidence and Hydrologic Monitoring	Aerial photography/surveying/computer analysis.	H/H	Annual	Annual	Ten years after mining operation closes down, significant changes in surface resources occur.
Protection - Air Quality							
290	Whether Utah and Colorado State Air Quality Standards and Guidelines are met.	Compliance with weather forecast, burning index and visual observation of smoke dispersal.	M/M	Ongoing	Any Violation	Adverse public reaction or settling of smoke into inhabited areas or any violation of State standards.	
Protection - Fire							
F08	Number of wildfire and acres burned.	Frequency by size, distribution, intensity levels and acres burned.	H/H	Annual	5 Year	Twenty percent increase in cumulative 5 year average in any of the factors.	
F02	Fire Prevention Program	Number and size of person-caused fires.	H/H	Annual	5 Year	Twenty percent increase in cumulative 5 year average.	

TABLE IV-1 (Continued)

MIH Reference Code	Activity, Practice and/or Effect to be Measured	Data Source and/or Monitoring Technique	Expected Precision/ Reliability	Measurement Frequency	Reporting Period	Variation Which Would Cause Further Evaluation and/or Change in Management Direction	
Protection - Fire (Continued)							
P11	Fuel Treatment Program	On-site inspection, accomplishment reports, management attainment reports.	M/M	25 percent of sites.	Annual	Failure to treat at least 90 percent of activity fuels created during the year.	
P12	Vegetation treated by burning.	On-site inspection and visual estimates of effects and objective accomplishment.	M/M	At comple- tion of each project.	5 Year	+25 percent of resource objectives.	
Protection - Forest Pest Management							
11-A1	P34	Depredations by insects and disease.	Surveys by Forest Pest Management Specialists.	M/M	Annual	Annual	Increased or high pest damage.
		Plantation survival counts, post harvest timber sale reviews, silvicultural exams and range inspections.	M/M	Continuing	Annual	Infection/infestation approaches epi- demic levels.	
	P35	Effectiveness of dwarf mistletoe suppression projects to protect re- generation.	Field Review	H/H	Follow-up on projects.	5 Year	Infection of regeneration in precom- mercial thinned areas.
Lands							
J15	Land purchase and acquisition.	Land Adjustment Plan; Management Attainment Report	Data sources and monitoring tech- niques for all activities are expected to con- tain sufficient accuracy and confidence from	Annually Reviewed	Annual	+50 percent of planning period target.	
J13	Land Exchanges	Land Adjustment Plan; Management Report		Annually Reviewed	Annual	+50 Percent of planning period target.	

TABLE IV- 1 (Continued)

MIH Reference Code	Activity, Practice and/or Effect to be Measured	Data Source and/or Monitoring Technique	Expected Precision/ Reliability	Measurement Frequency	Reporting Period	Variation Which Would Cause Further Evaluation and/or Change in Management Direction
<u>Lands (Continued)</u>						
J18	Rights-of-Way Acquisition	Land Adjustment Plan; Management Attainment	which to make reliable com- parisons.	Annually Reviewed	Annual	+50 percent of planning period target.
J10	Occupancy Trespass	On-site inspection and landline location; Manage- ment Attainment Report.	Same	Continuously	Annual	+25 percent of planning period target.
J06	Landline Location	Survey; Management Attainment Report	Same	Annually Reviewed	Annual	+10 percent of planning period target.
J01	Special Use Permits, applications, amendments, transfers, and adminis- tration.	Land Use Reports	Same	5 percent of permits annually.	Annual	+25 percent of Regional Acceptable Work Standard and Forest Direction.
J22	Effect of management practices on adjacent or intermingled non-National Forest on Forest Plan goals and objectives.	Annually Interagency meetings, meetings with State and County govern- ments, grazing associa- tions.	Same	Continuing	Annual	Identification of significant problem in Forest Plan implementation as a re- sult of non-Forest land management activity.
<u>Facilities</u>						
12-18,29	Road and bridge construc- tion and reconstruction.	Accomplishment report and on-site inspection using approved project plans.	H	20 Percent Annually	5 Year	A 20 percent deviation from projected quantities.
L19	Road Maintenance	Road logs and condition surveys.	M	Continuous	5 Year	A 20 percent downward trend in the condition of road system.
L19	Road Closures	Review closure orders.	H	3 Year	3 Year	Closure order outdated.

TABLE IV-1 (Continued)

MIH Reference Code	Activity, Practice and/or Effect to be Measured	Data Source and/or Monitoring Technique	Expected Precision/ Reliability	Measurement Frequency	Reporting Period	Variation Which Would Cause Further Evaluation and/or Change in Management Direction
<u>Facilities (Continued)</u>						
	Road Obliterations	TIS Inventory	M	Continuous	5 Year	Deviation greater than 20 percent annually or 10 percent on a 5 year average.
L24,L25	Buildings	Inspection Reports	M	Annual	5 Year	Administrative failure to reduce the number of buildings previously undetected structural deficiency or health or safety hazard.
L28	Dam Administration	Inspections	H	Annual	Annual	Administrative failure to followup on unsafe dams.

Revision and Amendment

The need to amend a forest plan is derived from several sources, including the following:

1. Recommendations of the Interdisciplinary Team based on findings that emerge from monitoring and evaluating implementation of the forest plan (36 CFR 219.12(k); FSM 1922.6).
2. Decisions by the Forest Supervisor that existing or proposed permits, contracts, cooperative agreements, and other instruments authorizing occupancy and use should be considered for approval but are not consistent with the forest plan (36 CFR 219.10(e)).
3. Changes in proposed implementation schedules necessary to reflect differences between funding levels contemplated in the plan and funds actually appropriated.
4. Changes necessitated by resolution of administrative appeals.
5. Changes to correct planning errors found during plan implementation.
6. Changes necessitated by changed physical, social, or economic conditions.

Based upon advice and recommendation of the Interdisciplinary Team, the Forest Supervisor shall: determine whether proposed changes in a forest plan are significant or nonsignificant; make the determination in accordance with the requirements of 16 U.S.C. 1604(f), 36 CFR 219.10(e) and (f), 36 CFR 219.12(k), and sections 1922.33a and 1922.33b that follow; document the determination of significance or nonsignificance in a decision document; and provide appropriate public notification prior to implementing the changes. Written findings of Forest Officers regarding the consistency of projects or activities with the forest plan and the determination of the significance of an amendment are an integral part of the decision-making process; and as such are appealable under 36 CFR 211.18, not as preliminary planning process decisions, but as an important element of the final decision.

Nonsignificant amendments to a forest plan can result from changes such as:

1. Actions that do not significantly alter the multiple-use goals and objectives for long-term land and resource management.
2. Adjustments of Management Unit boundaries or Management Requirements resulting from further site-specific analysis when the adjustments do not cause significant changes in the long-term multiple use goals and objectives for land and resource management.
3. Occasions when a decision is made to proceed with consideration of a project or activity that is not consistent with the plan and the change is minor.
4. Minor changes in Standards and Guidelines.
5. Short-term fluctuations in an implementation schedule or changes in planned annual output(s).

The following examples are indicative of changes that may cause a significant amendment to a forest land and resource management plan:

1. Changes that have an important effect on the entire plan or affect land and resources throughout a large portion of the planning area such as large, forest-wide increases or decreases in resource demands.
2. Changes that would significantly alter the long-term relationship between levels of multiple use goods and services originally projected (36 CFR 219.10(e)). This category would include changes in implementation schedules created by sustained differences between proposed budgets and actual appropriations.

When a significant change needs to be made to the forest land and resource management plan, the Forest Supervisor must prepare an amendment.

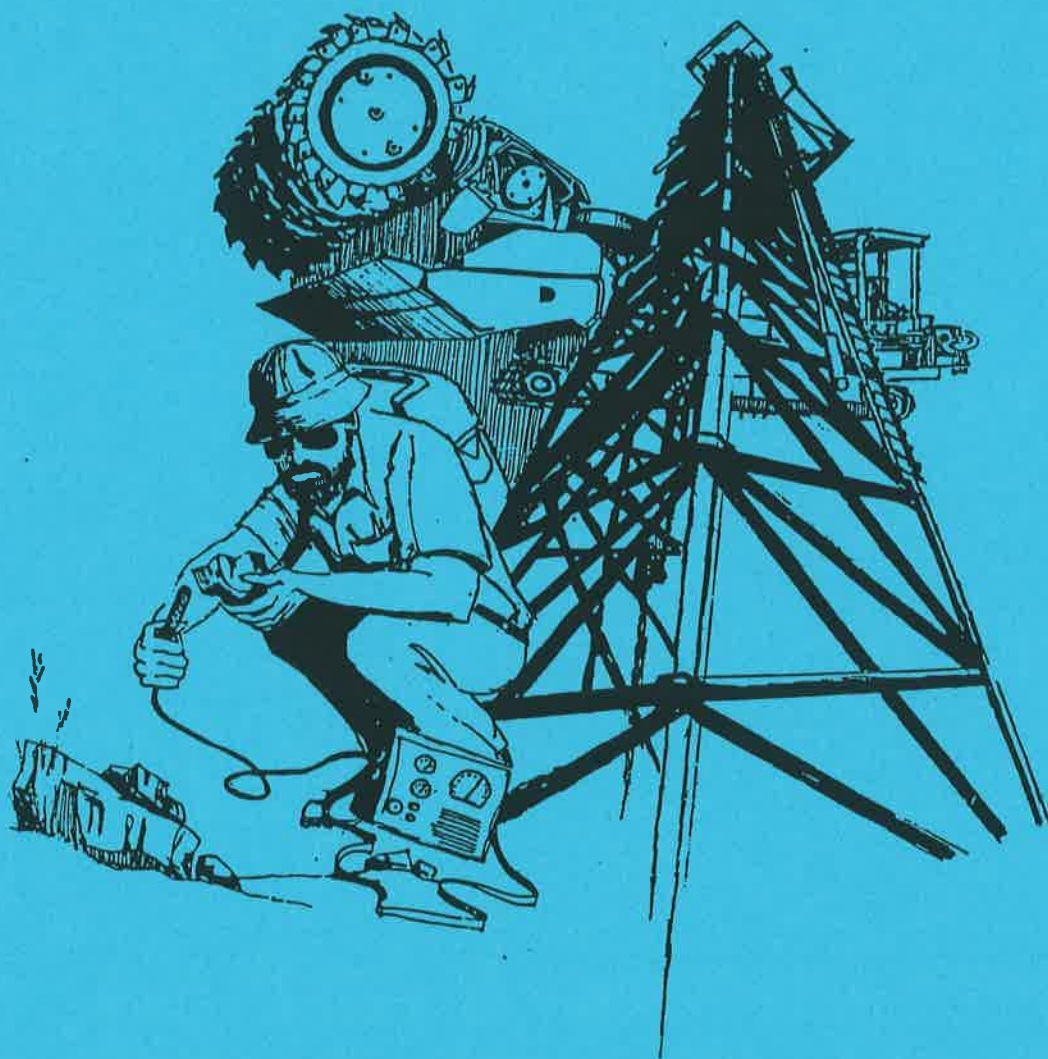
Documentation of a significant amendment and the analysis of it should focus on the issue(s) that have triggered the need for the change. In developing and obtaining approval of a significant amendment to the forest plan, follow the same procedures as are required for developing and approving the forest plan (36 CFR 219.10(f)).

The National Forest Management Act requires revision of forest plans at least every 15 years; however, a plan may be revised sooner if physical conditions or demands on the land and resources have changed sufficiently to affect overall goals or uses for the entire forest. The Regional Forester will monitor amendments periodically, and at least annually. If at any time plan revision appears to be appropriate or needed, the Forest Supervisor will be required to prepare the needed documentation. This Forest Plan will be revised no later than October 1, 2000.

Forest plan revision will follow procedures set forth in 36 CFR 219.12 after obtaining approval of the Chief to schedule a revision.

CHAPTER V

INDEX



CHAPTER V

INDEX

	<u>Page No.</u>
affected environment social/economic	II-73
air quality	II-56, III-5, 43, 91, IV-10, B-4
alternative	I-2, 3
coal	II-3, 16, 18, 21, 52, 53, 66, 71, III-12, 36, B-1, C-1
corridors, highways	II-57, 68, III-37, 95, D-1-17
corridors, utilities	II-57, 68, III-37, 95, D-1-17
deer (see also wildlife management indicator species)	II-9, 10, 12, 29-32, 35, 66, II-72, III-19-20, B-4, C-2
disease, forest	II-12, 13, 39, 55, 56, 68, 70, III-5, 25, 27, 43, VI-11
economic efficiency	D-2, 9, 10, 12, 14
electronic site	II-65, III-92
elk (see also wildlife management indicator species)	II-9, 10, 12, 29-32, 35, 66, II-72, III-19-20, B-4, C-2
facilities	II-8, 9, 22, 24, 55, 56, 59, 64, 67, 69, 71, 73, III-5, III-7, 9, 14, 23, 31, 33, 34, 36, 41, 86, 91, IV-12
fire	II-11, 13, 53-55, 68, III-13, 42, 43, 86, IV-10, IV-11, A-41, 42, 47, B-6, 9, 19, 21, 22, 26
fish	II-29, 30, 34, 35, 65, III-3, 10, 19-24, 59, 62, 65, 70, 75, III-78, 81, 84, 93, 96, IV-5, 6, A-37-39, 42, B-5, C-2, D-12
fuelwood	II-17-21, 43, 55, 66, 70, III-28, IV-8
industries	II-17-20, 52, 56, 73, III-42
insects, forest	II-8, 12, 13, 43, 55, 68, 70, III-5, 25, 27, 43, IV-11
issues and concerns	II-65, III-1, B-3
lands (ownership and classification)	II-1, 2, 55, 57, 58, 67, III-4, 7, 13, 37, 38, IV-11, 12, A-43, 54, 55, B-10, 24, D-5
law enforcement	II-54, 55

lifestyle	II-18, 25
livestock	II-8, 11-14, 36, 38-41, 68, 69, III-3, 24, 32, 55, 56, 58, III-59, 61, 62, 64, 65, 67, 68, 70, 75, 78, 83, 84, 88, 96
minerals	II-9, 16, 51-53, 66, 70, 71, III-4, 7, 12, 34-36, 50, 54, III-55, 57, 59, 62, 66, 72, 76, 79-83, 90, 93, 94, IV-10
leasable	II-16, 51, 52, 66, 71, III-4, 12, 35, 36, 62, 76, IV-80-83, 93, 94, 96, 97, 99, 104, 108, IV-9
locatable	II-51, 52, 66, III-4, 12, 76, 83, 93, 99, 107
common variety	II-51, 53, III-4, 12, 36
minorities	II-17
National Environmental Policy Act of 1969 (NEPA)	II-26
National Forest Management Act of 1976 (NFMA)	II-29
oil and gas	II-16, 52, 67, 71, I-12, 35, B-1, 2, D-3, 6
planning process	I-2, III-1
public participation	II-67
range	II-8, 16, 32, 38-41, 55, 68, 69, III-3, 7, 10, 19, 24, III-25, 41-43, 45, 46, 49, 52, 53, 56, 58, 59, 61-65, III-68, 70, 75, 78, 80, 81, 84, 90, 93, 96, IV-6, 7
recreation	II-8, 14, 16-18, 20-24, 27, 29, 59, 60, 63, 64, 67, 71, 72, III-2, 6, 7, 9, 17-19, 23, 35, 36, 45-50, 52-59, 62, 64, III-65, 68, 70, 75, 78, 81, 83, 84, 88, 89, 93, 96, IV-3, 4
research natural areas (RNA's)	II-59, 68, 78, III-83-86, 96, C-2, D-5
riparian	II-8, 9, 14, 34, 46, 66, III-4, 8-11, 18, 31, 69-73, B-5, D-2, 12
roads	II-8, 9, 24, 27, 33, 57-64, 66, 73, III-18, 32, 33, 37, 39-42, III-52, 53, 56-58, 60, 61, 63, 68, 73, 76, 86, 90, 97, IV-12, 13
sensitive plants	II-35-37, III-21
soils	II-3, 7-9, 12, 32, 39, 69, III-4, 7, 11, 23, 31, 32, 34, 37, 72, III-73, 77-79, 85, 90, IV-8, 9, A-31, 35, B-7, 14, D-9, 12, 14
special use permits (non-recreation)	II-46, 57, 65, III-5, 13, 33, 92
timber	II-8, 11, 13, 16, 21, 33, 41-43, 55, 56, 66, 70, III-3, 7-9, 11, 22, 25-30, III-41, 45, 59, 65, 67, 75, 85, IV-7, 8, A-22, 36, 42, B-10, 19, C-10

Page No.

trails	II-8, 9, 24, 58, 59, 64, 66, 73, III-18, 32, 35-37, III-41, 42, 52, 53, 56, 57, 73, 90, 91, IV-4, B-13
transportation	II-18-20, 59, 60, 66, 73, III-5, 14, 36, 39, III-40, 63, 68, 73, 76, 82, 86, 90, 97, A-56
vehicular travel use (ORV)	II-20, 55, 64, 66, 72, III-18, 62, 65, 68, 75, 84, 96, B-7
visual	II-12, 14, 27-29, III-2, 17, 37, 48, 53, 62, 78, III-81, 84, 93, IV-4, 5, B-3, D-2, 8, 9, 12
water	II-1, 7-9, 14, 34, 43, 45, 46, 48-51, 67, 69, 73, III-4, 6, 7, 11, III-20, 30-34, 36, 45, 69-72, 74, 75, 78, 79, 83, 85, 89, 90, 97, IV-9, A-32, 55, 42, B-7, 10, 15, 25, C-2, 4, D-2, 7, 14
wilderness	II-20, 24, 29, 56, 58, 67, 70, 72, III-3, III-7, 10, 19, 45, 88-91, IV-5, C-2, D-5
wildlife	II-9-14, 29-31, 34, 35, 38, 65, 66, III-3, 7, 10, 19-24, 45, 59, 62, 65, 70, 75, III-78, 81, 84, 90, 93, 96, IV-5, 6, A-7, B-5, 22, 26, C-4, D-2, 9, 12, 14
management indicator species (MIS)	II-31, III-19, B-2, D-9, 12, 14
threatened and endangered species	II-35-37, III-21, B-12, 17, C-2, 3, D-2, 12, 14

CHAPTER VI APPENDIXES



APPENDIX A

ACTIVITY SCHEDULES

The Activity Schedules are listed by Resource Elements and Support Service Elements. The index to Resource Elements is as follows. The index to the Support Service Elements follows on page A-42.

Resource Elements

Activity Schedules for Resource Elements are listed as follows:

<u>Element</u>	<u>Page</u>
Recreation Activity Schedule	A-2
Cultural Resource Activity Schedule	A-3
Dark Canyon Wilderness Management Activity Schedule	A-5
Wildlife and Fish Habitat Improvement Activity Schedule	A-6
Range Improvement Activity Schedule	A-12
Timber Activity Schedule	A-21
Soils Activity Schedule	A-29
Watershed Activity Schedule	A-30
Landslide and Flood Damage Repair Activity Schedule	A-33
Minerals and Geology Activity Schedule	A-41

RECREATION ACTIVITY SCHEDULE

The Ten-Year Activity Schedule for Recreation Construction and Reconstruction schedules activity development for large projects and small projects at recreation sites, and trail and trailhead projects.

TABLE A-1

RECREATION CONSTRUCTION/RECONSTRUCTION ACTIVITY SCHEDULE

Project Name or Description	Ranger District	MIH Code	Unit of Measure	Output Units	Year	Management Area
DEVELOPED RECREATION SITES - LARGE PROJECT PROGRAM						
Old Folds Flat - Phase II	Price	A06	PAOT	310	1986	DRS
Ferron Reservoir Complex	Ferron	A06	PAOT	280	1991	DRS
Dalton Springs	Monticello	A06	PAOT	65	1995	DRS
DEVELOPED RECREATION SITES - SMALL PROJECT PROGRAM						
Joes Valley Reservoir - Phase II	Ferron	A06	PAOT	240	1987	DRS
Twelve Mile Flat	Sanpete	A06	PAOT	140	1988	
Devil's Canyon	Monticello	A06	PAOT	250	1990	DRS
Buckboard	Monticello	A06	PAOT	160	1992	DRS
Spring City	Sanpete	A06	PAOT	50	1995	
TRAILHEAD CONSTRUCTION						
Dark Canyon	Monticello	L12/A05	Trailhead	1	1989	TBR
Fish Creek NRT	Price	L12/A06	Trailhead	1	1993	SPR
Transmountain	Moab	L12/L05	Trailhead	1	1995	RNG
TRAIL RECONSTRUCTION						
Fish Creek NRT - Bridges	Price	L22	Bridge	2	1987	SPR
Mill Canyon Loop - Bridge	Price	L22	Bridge	1	1989	UDM
Clark's Lake Loop	Moab	L22	Miles	1	1991	RNG
Silver/Gooseberry	Price	L22	Miles	3	1993	SPR
Woodenshoe/Dark Canyon	Monticello	L22	Miles	7	1995	DCW

CULTURAL RESOURCE ACTIVITY SCHEDULE

The following table (A-2) gives projected minimum outputs for the next ten years in cultural resource management in ten categories of major measurable cultural resource actions. These categories reflect the guidelines of the National Forest Management Act. Five of the categories entail written plans and the other five are more concerned with "action" elements of management. An explanation of the categories is shown below:

OVERVIEW (Measure: Documents)	Initial comprehensive overview, five-year review, or ten-year update.
PROTECTION PLANS (Measure: Documents)	Site-specific or area-specific plans about protection measures such as patrolling or fencing, and on-going problems such as erosion or vandalism.
MAINTENANCE PLANS (Measure: Documents)	Site-specific or area-specific plans about salvage operations needed, stabilization work to be done, etc.
INTERPRETATION PLANS (Measure: Documents)	Site-specific or area-specific plans about location development of places suitable for public education (VIS).
ANALYSIS REPORTS (Measure: Documents)	Detailed analysis reports about settlement patterns, artifact distribution, and so forth, that can be used for future management decisions and/or research designs.
SURVEY (Measure: Documents)	New survey, or extensive recheck on old areas needing updating.
SITE EVALUATION (Measure: Sites)	New recording, testing for significance, or extensive recheck of previously recorded sites needing updating.
NOMINATION (Measure: Sites)	Completed draft National Register of Historic Places nomination forms sent to the Regional Archeologist.
LEGAL PROTECTION (Measure: Days)	Blocks of time to make the minimum days spent in patrol, evidence gathering, case preparation, testifying, salvage excavation, etc.
MAINTENANCE (Measure: Days)	Blocks of time to make the minimum days spent in actual salvage, stabilization, erosion control, photo trend plots, visitor interpretive development, etc.

Table A-2 is generalized, and not location-specific to allow for protection of the resource and later detailed description in the separate cultural resource overview.

Plans for the overview, protection, maintenance, and interpretation are to be staggered during subsequent years, so as not to overburden writing time in any one year. Analysis reports can be relatively brief studies of a facet of prehistoric patterning which will help in future management planning and research design. A yearly output of these will ensure an increasing depth of understanding of the cultural resource under Forest jurisdiction. The "overview" category presupposes a completed cultural resource overview by the end of fiscal year 1986, and the timing of the overview (1990) and the overview update (1995) is to correlate somewhat with the schedule of the Forest Plan itself.

Actions shown on the table are of necessity, very approximate, and variable. The table reflects the assumption that maintenance protection should constantly increase as an essential activity, while some other categories such as legal protection could level off as effectiveness in citizen awareness of the problem would preclude the need for further expansion of Forest Service time.

Some areas of the Forest are dense with significant cultural resource sites. The density and nature of the sites is such that projects in these areas may require complex and time-consuming attention, sometimes to the point that the project might not be economically feasible. To protect the cultural resources, these sensitive areas cannot be mapped or described in this document, but this information is available to appropriate land managers from cultural resource specialists. To aid in timely project approval, when projects are proposed in known or suspected high sensitivity areas, the land manager should:

- Allow extra lead time for extensive cultural resource field and office work.
- Anticipate above average cultural resource costs for inventory, evaluation, and mitigation.
- Expect the need for "intensive complete" inventory for all large scale ground-disturbing projects.
- Realize that parts of the area may be designated as special and need to be totally avoided.
- Understand that some projects, or parts of them, may prove to be economically unfeasible due to the extensive and complex nature of the required cultural resource mitigation.

Minimum outputs for the ten categories during the ten-year planning period are shown in the Cultural Resource Activity Schedule, Table A-2.

TABLE A-2

CULTURAL RESOURCE ACTIVITY SCHEDULE

Activities	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Overview					1					1
Protection Plan	1			1				1		
Maintenance Plan		1				1			1	
Interpretation Plan			1				1			
Analysis Report	1	1	1	1	1	1	1	1	1	1
Survey	500	500	500	500	500	500	500	500	500	500
Site Evaluation	30	30	30	30	30	30	30	30	30	30
Nomination	2	2	2	2	3	3	4	4	4	5
Legal Protection	10	12	15	20	18	16	14	12	10	8
Maintenance	8	10	12	14	16	18	20	22	24	26

DARK CANYON WILDERNESS MANAGEMENT ACTIVITY SCHEDULE

The Dark Canyon Wilderness Management Activity Schedule lists activities needed to provide information to develop the wilderness management program and to perpetuate, manage, or control existing uses. The schedule shows the period when work should be accomplished. The trail program for Dark Canyon Wilderness includes construction or reconstruction of two miles per year over the 10-year planning period as well as routine maintenance on all trails.

TABLE A-3

DARK CANYON WILDERNESS MANAGEMENT ACTIVITY SCHEDULE

Activity	Fiscal Year	
	Starting	Ending
Complete Legal Description	1986	1987
Boundary Signing and Posting	1986	1994
Peavine Corridor Management Standards	1986	1987
Special-Use Permit Analyses and Use Standards	1993	1994
Range and Recreation Livestock Vegetation Condition and Boundary Survey	1987	1993
Archeological Site Surveys Complete	1987	1988
Social Contacts Survey	1986	1991
Fire Planning and Occurrence	1986	1987
Water Sources Survey	1987	1989
Natural and Scenic Areas Survey	1989	1991
Code-A-Site Inventory	1989	1991
Minerals and Energy Inventory Update	1986	1988
Inventory and Evaluation of Man-Made Features	1987	1992
Inventory and Mapping of Physiography	1987	1993
Air Quality Inventory	1988	1990
Brochure	1994	1995
Trailhead Identification	1986	1990
Trail Identification and Maintenance Survey	1987	1989
Trail Signing	1986	1989

WILDLIFE AND FISH HABITAT IMPROVEMENT ACTIVITY SCHEDULE

An activity schedule has been developed to improve wildlife and fish habitat on the Manti-LaSal National Forest, Table A-4, and the Flatwater Fisheries Improvement Activity Schedule, Table A-5. The Utah State Comprehensive Wildlife Plan helps set priorities for the Plan. Through the State Comprehensive Plan and cooperative Interagency Biological Unit plans, habitat management is a joint effort between the Forest and UDR. This activity schedule will continue the cooperation effort in maintenance and/or improvement of wildlife and fish resources.

The scheduled treatments include but are not limited to:

Mahogany Treatment - Most curleaf mahogany stands are mature or decadent and out of reach of big-game animals, pruning in the spring can cause resprouting, regenerating the plant, and providing forage.

Pinyon-Juniper Treatment - Many old pinyon-juniper chainings were not properly designed for big-game use. These chainings are being invaded by young trees and will lose their value. Treatment includes redesigning the area chained to provide for big-game use and control of young trees by various methods.

Aspen Perpetuation Treatment - Many aspen stands are succeeding to conifer trees, some stands have completely converted to conifer. As they convert these stands lose their foraging value. Others are decadent and in need of regeneration. Treatment methods include methods of controlling the conifer and stimulating sprouting of the aspen for regeneration.

Oak Treatment - Some oak stands are located on key big-game winter ranges some of these stands are decadent. Treatment would open these stands up and stimulate forage production.

Serviceberry Treatment - Many serviceberry stands are decadent and producing very little available forage for big-game animals. Treatment methods would regenerate the stand and create available forage.

Water Development and/or Guzzlers - Some areas of unused range are capable of producing more forage for big game. Springs or guzzler construction would result in providing water, thus allowing additional use by big game.

Stream Improvement - Many reaches of streams do not provide optimum habitat for fish. Stream improvement would improve the habitat in these reaches by providing needed standard structures.

Bank Stabilization and Riparian (Willow Planting) - Many reaches of stream are not providing optimum fish habitat due to unstable streambanks and lack of shade. These treatments would provide bank stability and shade.

Oxygenations - Provide oxygen during the winter months to enable survival of fish.

Conservation Pool - Obtaining a minimum pool depth to enable survival of fish during winter months.

Reconstruction - Rebuilding a breached or older dam to bring the reservoir to a safe standard.

Many additional treatments need to be accomplished for the many species of wildlife on the Forest. The following activity schedule is ambitious, but is not able to extend beyond the Management Indicator and high interest species, due to the level of funding.

TABLE A-4

WILDLIFE AND FISH HABITAT IMPROVEMENT ACTIVITY SCHEDULE

Ranger District/ Project Name or Description	MIH Code	Unit of Measure	Output Units	Year	Management Area
SANPETE RANGER DISTRICT					
Aspen Treatment	C02-081	Acre	500	1986	RPN
Stream Improvement	C03-082	Structure	10	1986	RNG
Aspen Treatment	C02-081	Acre	500	1987	RPN
Oak Creek Stream Improvement	C03-082	Structure	3	1987	RPN
North Fork Manti Stream Improvement	C03-082	Structure	3	1988	RPN
Aspen Treatment	C02-081	Acre	400	1988	RNG
Aspen Treatment	C02-081	Acre	250	1989	RNG
Aspen Treatment	C02-081	Acre	200	1989	RNG
Oak Harvest Treatment	C02-081	Acre	400	1990	GWR
Stream Improvement	C02-082	Structure	7	1990	RPN
Stream Improvement	C03-082	Structure	3	1991	RPN
Pinyon-Juniper Treatment	C02-081	Acre	100	1991	GWR
Oak Treatment	C02-081	Acre	150	1992	GWR
Aspen Treatment	C02-081	Acre	200	1992	RNG
Pinyon-Juniper	C02-081	Acre	100	1993	GWR
Aspen Treatment	C02-081	Acre	200	1993	RNG
Aspen Treatment	C02-081	Acre	500	1994	RNG
Aspen Treatment	C02-081	Acre	150	1994	RNG
Stream Improvement	C03-082	Structure	25	1995	RPN
FERRON RANGER DISTRICT					
Pinyon-Juniper Control	C02-081	Acre	150	1986	KWR
Serviceberry Treatment	C02-081	Acre	100	1986	KWR
Serviceberry Treatment	C02-081	Acre	180	1987	KWR
Aspen Treatment	C02-081	Acre	200	1987	RNG
Aspen Treatment	C02-081	Acre	200	1987	TBR
Mixed Browse Treatment	C02-081	Acre	100	1988	KWR
Serviceberry Treatment	C02-081	Acre	100	1988	GWR
Aspen Treatment	C02-081	Acre	100	1988	RNG
Curlleaf Mahogany Treatment	C02-081	Acre	80	1989	KWR
Flow and Seed	C02-081	Acre	100	1989	KWR
Aspen Treatment	C02-081	Acre	400	1989	RNG/TBR
Aspen Treatment	C02-081	Acre	300	1989	RNG
Sagebrush Treatment	C02-081	Acre	40	1989	KWR
Water Development (Bird Guzzler)	C03-082	Structure	1	1990	GWR
Pinyon-Juniper Treatment	C02-081	Acre	200	1990	GWR
Aspen Treatment	C02-081	Acre	391	1990	SFR
Aspen Treatment	C02-081	Acre	200	1990	RNG
Pinyon-Juniper Treatment	C02-081	Acre	600	1991	GWR
Water Development	C03-081	Structure	1	1991	GWR
Aspen Treatment	C02-081	Acre	400	1991	RNG

TABLE A-4 (Continued)

WILDLIFE AND FISH HABITAT IMPROVEMENT ACTIVITY SCHEDULE

Ranger District/ Project Name or Description	MTH Code	Unit of Measure	Output Units	Year	Management Area
FERRON RANGER DISTRICT (Continued)					
Pinyon-Juniper Treatment	C02-081	Acre	150	1992	GWR
Serviceberry Treatment	C02-081	Acre	15	1992	GWR
Sagebrush Treatment	C02-081	Acre	20	1992	KWR
Curleaf Mahogany Treatment	C02-081	Acre	50	1992	KWR
Aspen Treatment	C02-081	Acre	200	1992	GWR
Pinyon-Juniper Control	C02-081	Acre	200	1993	GWR
Aspen Treatment	C02-081	Acre	200	1993	RNG
Pinyon-Juniper Control and Seed	C02-081	Acre	150	1994	KWR
Water Development	C03-081	Structure	3	1994	GWR
Aspen Treatment	C02-081	Acre	300	1994	RNG
Flow and Seed	C02-081	Acre	150	1995	KWR
Water Development (Bird)	C03-081	Structure	1	1995	GWR
Aspen Treatment	C02-081	Acre	200	1995	RNG
Fish Structures	C02-082	Structure	4	1986	RPN
Fish Structures	C02-082	Structure	4	1987	RPN
Fish Structures	C02-082	Structure	4	1988	RPN
Fish Structures	C02-082	Structure	4	1989	RPN
Fish Structures	C02-082	Structure	4	1990	RPN
Fish Structures	C02-082	Structure	4	1991	RPN
Fish Structures	C02-082	Structure	4	1992	RPN
Fish Structures	C02-082	Structure	4	1993	RPN
Fish Structures	C02-082	Structure	4	1994	RPN
Fish Structures	C02-082	Structure	4	1995	RPN
PRICE RANGER DISTRICT					
Water Development (Guzzler)	C03-081	Structure	2	1986	RNG
Fish Bank Stabilization (Willow Planting)	C02-082	Acre	5	1986	SPR
Serviceberry Treatment	C02-081	Acre	100	1986	RNG
Curleaf Mahogany Treatment	C02-081	Acre	60	1987	GWR
Aspen Treatment	C02-081	Acre	180	1987	TER
Stream Improvement	C02-082	Structure	5	1987	RNG
Aspen Treatment	C02-081	Acre	200	1988	RNG
Water Development (Guzzler)	C03-081	Structure	1	1988	RNG
Curleaf Mahogany Treatment	C02-081	Acre	60	1988	GWR
Pinyon-Juniper Control	C02-081	Acre	30	1988	GWR
Water Development (Guzzler)	C03-081	Structure	2	1989	GWR
Pinyon-Juniper Control	C02-081	Acre	100	1989	GWR
Aspen Treatment	C02-081	Acre	200	1989	RNG
Oak and Pinyon-Juniper Control	C02-081	Acre	200	1990	GWR
Aspen Treatment	C02-081	Acre	100	1990	RNG

TABLE A-4 (Continued)

WILDLIFE AND FISH HABITAT IMPROVEMENT ACTIVITY SCHEDULE

Ranger District/ Project Name or Description	MIR Code	Unit of Measure	Output Units	Year	Management Area
PRICE RANGER DISTRICT (Continued)					
Willow Planting	C02-082	Acre	15	1991	RPN
Stream Improvement	C03-082	Structure	15	1991	RPN
Bank Stabilization	C02-082	Acre	7	1991	RPN
Aspen Treatment	C02-081	Acre	200	1991	RNG
Aspen Treatment	C02-081	Acre	250	1992	RNG
Willow Planting	C02-082	Acre	10	1992	RPN
Bank Stabilization	C02-082	Acre	7	1993	RPN
Stream Improvement	C03-082	Structure	10	1993	RPN
Willow Planting	C02-082	Acre	6	1993	RPN
Aspen Treatment	C02-081	Acre	200	1993	RNG
Stream Improvement	C03-082	Structure	5	1994	RPN
Willow Planting	C02-082	Acre	20	1994	RPN
Aspen Treatment	C02-081	Acre	100	1994	RNG
Stream Improvement	C03-082	Structure	5	1995	RPN
Willow Planting	C02-082	Acre	5	1995	RPN
Bank Stabilization	C02-082	Mile	4	1995	RPN
Aspen Treatment	C02-081	Acre	175	1995	RNG
MOAB RANGER DISTRICT					
Pinyon-Juniper Control	C02-081	Acre	250	1986	RNG
Water Development (Guzzler)	C03-081	Structure	1	1986	RNG
Water Development (Guzzler)	C03-081	Structure	1	1987	RNG
Fence Riparian Area	C03-082	Mile	1/4	1987	RNG
Pinyon-Juniper Control	C02-081	Acre	200	1988	RNG
Aspen Treatment	C02-081	Acre	200	1988	RNG
Oakbrush Treatment	C02-081	Acre	200	1989	RNG
Stream Improvement	C03-082	Structure	10	1989	RPN
Aspen Treatment	C02-081	Acre	200	1990	RNG
Water Development (Guzzler)	C03-081	Structure	1	1990	RNG
Fence Riparian Area	C03-082	Mile	1/4	1991	RPN
Pinyon-Juniper Control	C02-081	Acre	200	1992	GWR
Stream Habitat Improvement	C02-082	Structure	10	1992	RPN
Aspen Treatment	C02-081	Acre	200	1993	RNG
Oakbrush Treatment	C02-081	Acre	200	1994	RNG
Water Development (Guzzler)	C03-081	Structure	1	1994	RNG
Water Development (Slickrock Guzzler)	C03-081	Structure	2	1995	RNG

TABLE A-4 (Continued)

WILDLIFE AND FISH HABITAT IMPROVEMENT ACTIVITY SCHEDULE

Ranger District/ Project Name or Description	MIH Code	Unit of Measure	Output Units	Year	Management Area
MONTICELLO RANGER DISTRICT					
Aspen Treatment (Big Flat)	C02-081	Acre	200	1986	RNG
Pinyon-Juniper Control (25% of Project)	C02-081	Acre	100	1986	RNG
Pinyon-Juniper Treatment (Dry Wash)	C02-081	Acre	190	1987	RNG
Riparian Rehabilitation	C02-082	Mile	1 1/2	1987	RPN
Pinyon-Juniper Control (25% of Project)	C02-081	Acre	145	1988	RNG
Water Development (Dry Mesa)	C03-081	Structure	1	1988	RNG
Aspen Treatment (Deadman)	C02-081	Acre	250	1989	RNG
Water Development (Davis Pocket)	C03-081	Structure	1	1989	RNG
Aspen Treatment (Harts Draw)	C02-081	Acre	250	1990	RNG
Water Development (Horse Flat)	C03-081	Structure	1	1990	RNG
Aspen Treatment (Cottonwood)	C02-081	Acre	200	1991	RNG
Water Development (Cottonwood)	C03-081	Structure	1	1991	RNG
Pinyon-Juniper Control (25% of Project)	C02-081	Acre	375	1991	RNG
Aspen Treatment (Blue Creek)	C02-081	Acre	200	1992	RNG
Water Development (Dry Mesa)	C03-081	Structure	1	1992	RNG
Water Development (Davis Pocket)	C03-081	Structure	1	1993	RNG
Pinyon-Juniper Control (25% of Project)	C02-081	Acre	360	1993	RNG
Aspen Treatment (Blue Creek)	C02-081	Acre	300	1994	RNG
Pinyon-Juniper Control (25% of Project)	C02-081	Acre	100	1994	RNG
Aspen Treatment (Harts Draw)	C02-081	Acre	250	1995	RNG
Fence Riparian (Indian Creek)	C03-082	Mile	215	1995	RNG
Restore Riparian Vegetation (Indian)	C02-081	Mile	.5	1995	RNG
Pinyon-Juniper Control (25% of Project)	C02-081	Acre	350	1995	RNG

TABLE A-5

FLATWATER FISHERIES IMPROVEMENT ACTIVITY SCHEDULE

Ownership FS or P*	Project Name or Description	Ranger District	MIH Code	Unit of Measure	Output Units	Year	Management Area
FS	Gooseberry Oxygenation	Price	003	Acre	57	1986	RPN
FS	Potter's Pond Oxygenation	Ferron	003	Acre	8	1986	RPN
P	Huntington Reservoir Conservation Pool	Price	003	Acre	138	1987	RPN
P	Julius Flat Reservoir Conservation Pool	Ferron	003	Acre	32	1988	RPN
P	Loggers Reservoir Reconstruction	Sanpete	003	Acre	20	1988	RPN
P	Emery (Larson) Conservation Pool	Ferron	003	Acre	13	1989	RPN
P	Deep Lake Reconstruction	Sanpete	003	Acre	10	1989	RPN
P	Rigley Reservoir Conservation Pool	Ferron	003	Acre	8	1989	RPN
FS	Blue Lake Reconstruction	Moab	003	Acre	4	1989	RPN
P	Warner Reconstruction	Moab	003	Acre	5	1990	RPN
FS	Clark's Lake Reconstruction	Moab	003	Acre	2	1990	RPN
P	Racetrack Reconstruction	Monticello	003	Acre	2	1991	RPN
P	Lower WPA Reconstruction	Sanpete	003	Acre	3.5	1991	RPN
P	Marys Lake Conservation Pool	Ferron	003	Acre	5	1992	RPN
FS	Medicine Lake Reconstruction	Moab	003	Acre	2	1992	RPN
FS	Beaver Dam Reservoir Reconstruction	Price	003	Acre	2	1993	RPN
FS	Academy Mill Reconstruction Diversion	Ferron	003	Acre	5	1994	RPN
P	Marys Lake Oxygenation	Ferron	003	Acre	4	1994	RPN

* FS = Forest Service

P = Permittee

RANGE IMPROVEMENT ACTIVITY SCHEDULE

Table A-6 lists the planned range improvement projects by allotments and fiscal year. Project scheduling could vary some due to available funding, permittee coordination and participation, allotment plan changes and/or consolidation, project effectiveness analysis ranking based on Forest Direction, Standards and Guidelines, detailed project planning with Environmental Assessments, and coordination with other uses and activities. In addition to the projects listed in the table, an estimated 120 acres (Forest-wide) will be treated annually for the control of noxious weeds.

RANGE IMPROVEMENT ACTIVITY SCHEDULE

RANGER DISTRICT	FISCAL YEAR	PROJECT NAME AND DESCRIPTION	ALLOTMENT NAME	FR NO.	MIH CODES	IMPROVEMENT TYPE							MANAGEMENT AREA	
						FENCE	CATTLE-GUARDS	WATER DEVELOPMENTS			FORAGE TREATMENT ACRES	OTHER		
								SPRINGS	TROUGHS	STOCK-PONDS				
D-1	1986	Sagebrush Control, Unit 3	Beaver Dams S&G	109	D03									
		Sagebrush Control, Unit 4	Beaver Dams S&G	109	D03						370			RNC
		Tall Larkspur Control	Manti Canyon C&H	104	D03						175			RNC
		East Boundary Fence	Manti Mountain C&H	105	D05	.5					50			RNC
		Clear Creek Birch Creek Unit Fence	Twelve Mile C&H	108	D05	3								
	1987	Twelve Mile Allotment Boundary Fence	Twelve Mile C&H	108	D05	1								
		Tall Larkspur Control	Manti Canyon C&H	104	D03									
		Six Mile Plow and Seed	Six Mile C&H	106	D03						50			RNC
		Tall Larkspur Control	Twelve Mile C&H	108	D03						600			RNC
		Water Development, 80' Section 31	Beaver Dams S&G	109	D05						58			RNC
	1988	Water Development	Lasson C&H	103	D05				2					
		Sagebrush Control and Seeding	Lasson C&H	103	D03				2					
		Unit Fence Construction	Manti Canyon C&H	104	D05	3.5					95			RNC
		Loveridge Flat Sage Control	Black Mountain Forbush Cove S&G	111	D03						400			RNC
		Tall Larkspur Control	Twelve Mile C&H	108	D03						58			RNC
	1989	Patton Brush Burn and Seed	Manti Canyon C&H	104	D03						200			RNC
		Sage Valley Plow and Seed	Walis C&H	142	D03						300			RNC
		Trough Construction (Middle and West Unit)	Manti Mountain C&H	105	D05				2					
		Brush Control (Chain)	Twelve Mile C&H	108	D03						375			RNC
		Timber Canyon Fence	Island Lake S&G		D05	1								
	1990	Salina Creek, Center Clear Creek, Jump Creek, Windy Ridge (Ponds)	Island Lake S&G	118	D05									
		S. Gooseberry Ridge Plow and Seed	Fairview C&H	102	D03									
		Aspen Prescribed Burn	Jones Ridge S&G	119	D03						75			RNC
		Yearsa Revegetation	Manti Canyon C&H	104	D03						180			RNC
		Unit Division Fence	Manti Canyon	104	D05	2					600			RNC
	1991	60' Water Development	Jones Ridge S&G	119	D05				1					
		Sagebrush Spray/Burn	Jones Ridge S&G	119	D03									
		Peavine - Step Flat Fence	Twelve Mile C&H	108	D05	15					100			RNC
Twelve Mile Plow, Furrow, and Seed		Twelve Mile C&H	108	D03						594			RNC	
Black Mountain Trough, 100'		Loveridge Flat S&G	120	D03				3						
1992	Loveridge Flat Trough, 100'													
	Chris Canyon Trough, 100'													
	Loveridge Flat Ponds	Loveridge Flat S&G	120	D05										
	Aspen Rejuvenation	Loveridge Flat S&G	120	D03						300			RNC	
	Aspen-Fir Prescribed Burn (North Unit)	Fountain Green S&G	136	D03						450			RNC	

A-13

TABLE A-6 (Continued)

RANGE IMPROVEMENT
ACTIVITY SCHEDULE

RANGER DISTRICT	FISCAL YEAR	PROJECT NAME AND DESCRIPTION	ALLOTMENT NAME	FR NO.	MIH CODES	IMPROVEMENT TYPE							MANAGEMENT AREA	
						FENCE	CATTLE- GUARDS	WATER DEVELOPMENTS			FORAGE TREATMENT ACRES	OTHER		
								SPRINGS	TROUGHS	STOCK- PONDS				
D-1	1992	Oak and Sagebrush Control Bradley Trough, 100'	Six Mile C&H	106	D03						250		RNC	
		Head of Four Mile Trough, 100'	Fountain Green S&G	136	D05				1					
	1993	Sagebrush Control	Fountain Green S&G	130	D05				1					
		Cattleguards, 14'	Twelve Mile C&H	108	D03						70		RNC	
		North Flat Trough, 100'	Six Mile C&H	106	D05		2							
		South Flat Trough, 100'	Fountain Green S&G	136	D05				1					
		Unit Division Fence	Fountain Green S&G	136	D05				1					
	1994	Burnt Hills Revegetation	Wales C&H	142	D05	2								
		Unit Division Fences	Manti Canyon C&H	104	D03						600		RNC	
		Head Box and Trough	Wales C&H	142	D05	4								
		Pipeline and Trough	Deep Canyon S&G	135	D05				1					
		Plow and Drill Seed	Deep Canyon S&G	135	D05				1					
		Prescribed Burn Aspen	Deep Canyon S&G	135	D03						200		RNC	
		Seed Aspen (Hand)	New Canyon S&G	122	D03						60		RNC	
		Water Trough, 60'	New Canyon S&G	122	D03						90		RNC	
	1995	Heliotrope Allotment Boundary Fence	Jones Ridge S&G	119	D05				1					
		Bub Petty Trough, 100'	Lasson C&H	103	D05	1.5								
			Black Mountain Forbush Cove S&G	111	D05				1					
		Black Hole Spring Trough, 100'	Black Mountain Forbush Cove S&G	111	D05				1					
		Stock Ponds	Black Mountain Forbush Cove S&G	111	D05					5				
		Top Black Mountain Revegeta- tion	Black Mountain Forbush Cove S&G	111	D03						460		RNC	
		1996	Oak Creek Face Unit Division Fence	Fairview C&H	102	D05	1							
			Dry Canyon Drift Division Fence	Fairview C&H	102	D05	4							
	Oak and Sagebrush Control		Six Mile C&H	106	D03						800		RNC	
	Lower Ranch Troughs, 70'		Black Mountain Forbush Cove S&G	111	D05				2					
	Top Black Mountain Trough	Black Mountain Forbush Cove S&G	111	D05				1						
D-2	1986	Buck Flat Ferron C&H	Ferron C&H	203	D05	3								
		Indian Creek S&G	Indian Creek S&G	217	D05									
													TBR	
		Common Use Boundary Fence												
		Last Water - Meadow Gulch Unit Fence	Ferron C&H	203	D05	3							RNC	
	Woodtick Point Common Use Fence	Ferron C&H	203	D05	2							RNC		
			Duck Fork S&G	213	D05								RNC	

TABLE A-6 (Continued)

RANGE IMPROVEMENT
ACTIVITY SCHEDULE

RANGER DISTRICT	FISCAL YEAR	PROJECT NAME AND DESCRIPTION	ALLOTMENT NAME	FR NO.	MIM CODES	IMPROVEMENT TYPE							MANAGEMENT AREA
						FENCE	CATTLE- GUARDS	WATER DEVELOPMENTS		STOCK- PONDS	FORAGE TREATMENT ACRES	OTHER	
A-15 D-2	1986	Trail Canyon Sagebrush Control	Trail Mountain C&H	206	D03						400		RMC
	1987	Pine Spring Headbox and Fence	East Mountain C&H	201	D05					1			RMC
		Pine Spring Unit Sagebrush Control	East Mountain C&H	201	D03						400		RMC
		Wasatch No. 2 Water Dev.	Heliotrope S&G	216	D05					1			TBR
		Cowboy Hollow Chain and Seed	Emery C&H	202	D03						200		RMC
		Swasey Creek Trail Crossing	Horn C&H	204	D05							1 Culvert	SPR
		Dry Basin Water Line	Horn C&H	204	D05			2				1 Mile Pipeline	RMC
		Veratrum Control Potters Canyon	Potters S&G	224	D03						50		TBR
	1988	Reeder Canyon Plow and Drill	Clay Banks S&G	211	D03						200		RMC
		Reeder Canyon Plow and Drill	Reeder Ridge S&G	226	D03						250		RMC
		Julius Flat Sagebrush Control	Blue Lake S&G	209	D03						250		RMC
		Horse Creek Aspen Treatment	Heliotrope S&G	216	D03						112		RMC
		Cove Unit Spring	East Mountain C&H	201	D05					1			RMC
	1989	Wagon Road Ridge S&G - Horn Mountain C&H Common Use Boundary Fence	Wagon Road Ridge S&G	230	D05	2							
		Roane Canyon Sagebrush Control	East Mountain C&H	201	D03						400		RMC
		Slide Lake Common Use Boundary Fence Log Worm	Little Petes Hole S&G	219	D05	1							RMC
		Greens Hollow Trough	Emery C&H	202	D05					1			SPR
	1990	Julius Flat Sagebrush Control	Emery C&H	202	D03						200		RMC
		Point of Olsen Bench Trough	Olsen Bench S&G	221	D05					1			RMC
		Cowcamp Waterline and Trough	Horn C&H	204	D05			3				3 Miles Pipeline	RMC
		Veratrum Control Potters Canyon	Potters S&G	224	D03						100		VPE
		Potters Canyon Plow and Drill	Potters S&G	224	D03						250		RMC
	1991	Grimes Wash Sagebrush Control	East Mountain C&H	201	D03						400		RMC
		Heliotrope-Emery-Ferron Common Use Boundary Fence	Heliotrope	216	D03	2							RMC
		Harmonica Lake Plow and Drill	Duck Fork S&G	213	D03						100		RMC
		Battleground Water Development	Trail Mountain C&H	206	D05			1				1/2 Mile Pipeline	VPE
		Ridley Ridge Troughs	Ridley Ridge S&G	227	D05					2			RMC
	1992	Peavine Flat Aspen Treatment	Peavine Flat	223	D03						170		RMC
		Woodtick Point Rip and Seed	Duck Fork S&G	213	D03						100		RMC
		South Sage Flat Sagebrush Control	Ferron C&H	203	D03						150		CVR
		McEwan Flat Sagebrush Control	Ferron C&H	203	D03						600		RMC
		Clear Reeder Canyon Jeep Trail	Clay Banks S&G	211	D05							2 Miles of Jeep Trail	TBR

A-16

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TABLE A-6 (Continued)

RANGE IMPROVEMENT
ACTIVITY SCHEDULE

RANGER DISTRICT	FISCAL YEAR	PROJECT NAME AND DESCRIPTION	ALLOTMENT NAME	PR NO.	NIN CODES	IMPROVEMENT TYPE							MANAGEMENT AREA
						FENCE	CATTLE- GUARDS	WATER DEVELOPMENTS		STOCK- PONDS	FORAGE TREATMENT ACRES	OTHER	
								SPRINGS	TROUGHS				
D-3	1988	Bennion Tarweed Control	Bennion	307	D03						220		RNC
		Bennion Rabbitbrush Control and Seeding	Bennion	307	D03						400		RNC
	1989	Cedar Knoll Water Development	Cedar Knoll	354	D05				1				RNC
		Bennion Rabbitbrush Control	Bennion	307	D03						500		RNC
		Horse Creek Water Development	Horse Creek	327	D03				2				SPR
		Red Spring Water Development and Pipeline	Water Mallow	347	D03				1				RNC
	1990	Cedar Knoll Brush Control and Seeding	Cedar Knoll	354	D03						100		CNR
		Cedar Knoll Brush Control (Burn)	Cedar Knoll	354	D03						200		CNR
		"C" Canyon Water Developments	"C" Canyon	352	D05			3	3				SPR
		French Creek Water Developments	French Creek	325	D05			2	2				SPR
		Driveway Brush Chaining and Seeding	Driveway	320	D03						800		RNC
	1991	Eccles Water Developments	Eccles Canyon	324	D05			4	4				RNC
		Cedar Knoll Brush Railing	Cedar Knoll	354	D03						270		CNR
		Spring Creek Veratrum Control	Spring Lake	342	D03						200		RNC
		"C" Canyon Spray, Flow, and Seeding	"C" Canyon	352	D03						500		SPR
		Clear Creek Brush Control and Seed	Clear Creek	316	D03						400		CNR
	1992	"C" Canyon Rabbitbrush Spray	"C" Canyon	352	D03						400		SPR
		Bean Ridge Water Development	Bean Ridge	304	D05			2					SPR
		Winter Quarters Water Development	Winter Quarters	350	D05			4					RNC
		"C" Canyon Rabbitbrush Spray	"C" Canyon	352	D03						400		SPR
	1993	Tucker Brush Control	Tucker	346	D03						200		CNR
		Seeley Canyon Water Development	Seeley Canyon S&G	330	D05			1	1				RNC
		East Gooseberry Water Development	East Gooseberry S&G	323	D05			3	3				RNC
		Mountain Lion Water Development	Mountain Lion S&G	335	D05			4	4				RNC
		Winter Quarters Rabbitbrush Control	Winter Quarters S&G	350	D03						200		RNC
	1994	Seeley Tarweed Control	Seeley Canyon	330	D03						100		RNC
		Seeley Brush Control	Seeley Canyon	330	D03						200		RNC
		Driveway Water Development	Driveway	320	D05			1	1				RNC
		Granger Ridge Tarweed Control	Granger Ridge	326	D03						25		SPR
		Granger Ridge Rabbitbrush Control	Granger Ridge	326	D03						410		SPR

TABLE A-6 (Continued)

RANGE IMPROVEMENT
ACTIVITY SCHEDULE

RANGER DISTRICT	FISCAL YEAR	PROJECT NAME AND DESCRIPTION	ALLOTMENT NAME	PR NO.	HIN CODES	IMPROVEMENT TYPE							MANAGEMENT AREA	
						FENCE	CATTLE- GUARDS	WATER DEVELOPMENTS			FORAGE TREATMENT ACRES	OTHER		
								SPRINGS	TROUGHS	STOCK- PONDS				
D-3	1996	Boulger Veratrum Cont.	Boulger	353	D03									
		Booths Canyon Revegetation	Booths Canyon	309	D03						100			RMC
		Cabin Hollow Water Develop- ment	Cabin Hollow	314	D05			3	3		50			RMC
		Lake Rolfsen Brush/Weed Control	Lake Rolfsen	332	D03									RMC
		Cabin Hollow Brush Control	Cabin Hollow	314	D03						100			RMC
D-4	1986	Water Hollow Brush Control	Water Hollow	346	D03						200			RMC
		Lackey Fan FS-BLM Boundary Fence								560				RMC
	1987	PJ Control North Beaver	LaSal	407	D05	2*							*BLM also doing half of project.	RMC
		Cold Spring Unit Fence	Beaver C&H	402	D03						400			RMC
		Beaver Creek Forest Boundary Fence	Mason Draw	408	D05	1.0								RMC
	1988	Beaver Creek Forest Boundary Fence	Chicken Creek	405	D05	1.2*							*BLM also doing half of project.	RMC
		Andy Mesa Unit Fence	LaSal	407	D05	.8								RMC
		Chicken Creek Ponds	Castle Valley	404	D05	2.0								RMC
	1989	PJ Control North Beaver	Chicken Creek	405	D05									RMC
		Dorcy Canyon Unit Fence	Beaver C&H	402	D03					6				RMC
		Fisher Mesa Chaining	Squaw Spring	412	D05	2					400			RMC
	1990	Fisher Mesa	Castle Valley	404	D03									RMC
		Burkholder Draw-Porcupine Rim Unit Fence	Castle Valley	404	D05					10	800			RMC
		Sinbad Ridge Unit Fence	Mason Draw	408	D05	2								RMC
	1991	Chicken Creek Trough Reconstruction	Sinbad	410	D05	1.5								RMC
		Sinbad Ridge Ponds	Chicken Creek	405	D05				2					RMC
		Meloy Park Water Development	Sinbad	410	D05					12				RMC
	1992	Burkholder Draw Water Development	Mason Draw	408	D05				1					RMC
		Hideout Mesa	S. Paradox	408	D05				3					RMC
		Dry Draw Ponds	S. Paradox	411	D05						6			RMC
	1993	Gold Basin Drift Fence	Brumley Ridge	411	D05						3			RMC
		Warner Road Spring Develop- ment Ext. Pipeline 1/4 Mile	Brumley Ridge	403	D05	.5								RMC
		PJ Control - Slaughter Flat	Bald Mesa	401	D05				1					RMC
	1994	Paradox Creek Lion Creek Drift Fence and Cattleguard	Squaw Spring	412	D03						400			CWR
		Deer Spring Cattleguard	N. Paradox	411	D05	1	1							RMC
		Hideout Mesa Chaining	LaSal	407	D05		1							
	1994	Boren Mesa Ponds	S. Paradox	411	D03						600			RMC
		PJ Control Dorcy Canyon	Brumley Ridge	403	305					5				RMC
		Squaw Springs	412	D03						400			RMC	

TABLE A-6 (Continued)

RANGE IMPROVEMENT
ACTIVITY SCHEDULE

RANGER DISTRICT	FISCAL YEAR	PROJECT NAME AND DESCRIPTION	ALLOTMENT NAME	FR NO.	MIH CODES	IMPROVEMENT TYPE							MANAGEMENT AREA
						FENCE	CATTLE- GUARDS	WATER DEVELOPMENTS		STOCK- PONDS	FORAGE TREATMENT ACRES	OTHER	
D-4	1994	North-South Hollow Ponds	Bald Mesa	401	D05					6			RNG
		N. Beaver Sagebrush Treatment	Beaver	402	D03						200		RNG
	1995	South Mesa Ponds	Brunley Ridge	403	D05					5			RNG
		Death Trap PJ Chaining	Beaver	402	D03						300		RNG
		Burkholder Draw PJ Chaining	Mason Draw	408	D03						300		RNG
	1996	PJ Control Amasa Back	Squaw Springs	412	D03						400		RNG
		Black Canyon FS-BLM Boundary											
		Fence	Squaw Springs	412	D05	.5*						*BLM also doing	
		Hop Creek-Willow Basin Fence	S. Paradox	411	D05	2						half of project.	GWR
													RNG
D-5	1986	Mule Canyon Spring	West Mountain	516	D05			1					RNG
		North Causeway Spring	West Mountain	516	D05			1					RNG
		West Mountain North-South											
		Division Fence	West Mountain	516	D05	1.5							RNG
		Banks Spring	West Mountain	516	D05			1					RNG
		Causeway Reservoir #2	West Mountain	516	D05					1			RNG
		S. Causeway Reservoir #1	West Mountain	516	D05					1			RNG
		Verdure Unit Fence	Verdure	515	D05	1.3							RNG
		Verdure Ragweed Spray	Verdure	515	D03						15		RNG
		Kigalia Pt. #1 Water											
		Development	Twin Springs	514	D05			1					RNG
		Unnamed Sp. #2 N $\frac{1}{2}$ Sec. 13	Twin Springs	514	D05			1					RNG
		Unnamed Sp. Sec. 13	Twin Springs	514	D05			1					RNG
		Unnamed Sp. Sec. 19	Twin Springs	514	D05			1					RNG
	1987	West Mountain North-South											
		Division Fence	West Mountain	516	D04	1.5							RNG
		Mule Canyon PJ Chain	West Mountain	516	D03						580		RNG
		Mule Canyon Res. #1	West Mountain	516	D05					1			RNG
		Mule Canyon Res. #2	West Mountain	516	D05					1			RNG
		Kigalia Point Water Develop-											
		ment #2	Twin Springs	514	D05			1					RNG
		Kigalia Point Troughs	Twin Springs	514	D05			1					RNG
		Unnamed Spring Sec. 1	Twin Springs	514	D04			1					RNG
		Pond Verdure	Verdure	515	D05					1			RNG
		Trough and Pipeline Verdure	Verdure	515	D05			1					RNG
	1988	Banks Pipeline	West Mountain	516	D05								RNG
		North-South Division Fence	West Mountain	516	D05	2						1 Mile Pipeline	RNG
		Mule Spring #2	West Mountain	516	D05			1					RNG
		JH Pasture Maintenance	Twin Springs	514	D03						150		RNG
		Brushy Knoll Maintenance	Twin Springs	514	D03						300		RNG
		Spring Development	Blue Creek	503	D05			1					RNG
		Spring Development	Blue Creek	503	D05			1					RNG
		Revegetation Riparian Area	Verdure	515	D03						1		RNG

A-20

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A-20

TIMBER ACTIVITY SCHEDULE

The Timber Activity Schedule contains the following which summarizes timber resource information for the Forest.

- Timber Land Classification (Table A-7), is a summary table and graphic display (Figure A-1) of the timber land use classification and inventory for the Plan.

- Comparison with Previous Plan (Table A-8), is a comparison summary of this Plan with the previous Plan.

- Allowable Sale Quantity and Timber Sale Program Quantity (Table A-9).

- Allowable Sale Quantity (Figure A-2), displays the allowable sale quantity base harvest schedule and sustained yield.

- Present and Future Forest Condition (Table A-10), displays the condition of the present and future Forest type suitable for harvest, and the age class distribution.

- Silvicultural Practices (Table A-11) expresses an annual average for the first decade.

- Ten-Year Timber Sale Activity Schedule (Table A-12A and Table A-12B).

It should be noted that ponderosa pine stands that were harvested under an accelerated harvest in the late 1960's through early 1970's are rapidly reaching commercial size. Analysis may show that a commercial harvest is needed during this decade to protect past investments, and maintain a thrifty stand. This may cause an upward adjustment in the programmed and allowable cut.

TABLE A-7

TIMBERLAND CLASSIFICATION

	<u>M Acres</u>	<u>Percent</u>
I. Non-Forest Land	644.7	48.3
II. Forest Land	(689.8)	(51.7)
A. Forest Land not Suited for Timber Production	(321.7)	(24.1)
1. Land not capable of producing 20 cubic feet/acre/year.	252.6	18.9
2. Land withdrawn from timber production.	9.4	.7
3. Land not physically suited (irreversible damage likely to occur).	22.6	1.7
4. Land with inadequate current information.	37.1	2.8
B. Tentatively Suited Forest Land	(368.1)	(27.6)
1. Land not suited for timber production due to high logging costs.	235.4	17.7
2. Net land suited for timber production.	132.7	9.9
III. Total Land	1,334.5	100.0

FIGURE A-1

TIMBERLAND CLASSIFICATION

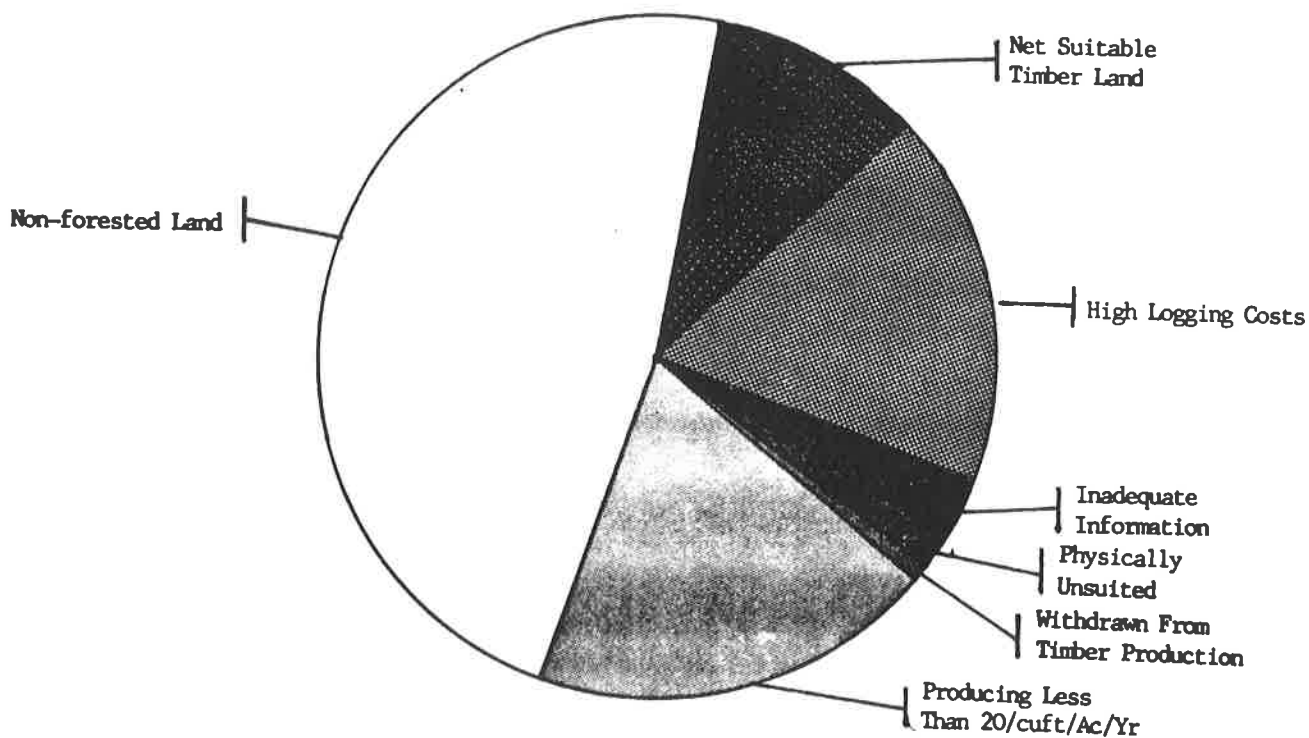


TABLE A-8

COMPARISON WITH PREVIOUS PLAN
(PART A)

	Previous Plan Acres*	This Plan Acres	Percent Change (%)***
Area Summary			
Net National Forest	1,263,800	1,334,461	+6%*
Total Forest Land	1,339,326	1,413,461	+9%*
Total Productive Forest Land/Capable Forest Land	400,100	411,874	
Total Comm. Forest Land/Available Productive Forest Land	390,689	368,055	
Total Non-Productive/Not Capable Forest Land	270,500	523,143**	
Total Non-Forest	593,200**	399,444	
Technologically Not Suitable		34,408	
Productive Forest Land Not Available			
Productive Reserved	- 0 -	9,411	
Productive Deferred	9,411	9,411	

* Previous Plan did not include San Pitch Division.

** Total Pinyon-Juniper type acreage included in this figure.

*** Percent change from previous Plan.

(PART B)

Previous Plan Commercial Forest Land		This Plan Suitable and Available Productive Forest Land	
	Acres	By Use Category	Acres
Standard	135,400	Suitable - Ponderosa Pine	49,942
		- Mixed Conifer	39,785
Special	11,100	- Aspen	42,930
Marginal	244,189	High Logging Costs*	
		- Ponderosa Pine	51,967
		- Mixed Conifer	88,109
		- Aspen	95,322

* Not economically efficient to log.

TABLE A-9

ALLOWABLE SALE QUANTITY AND TIMBER SALE PROGRAM QUANTITY
(ANNUAL AVERAGE FOR FIRST DECADE)

<u>Harvest Method</u>	<u>Allowable Sale Quantity</u>	
	<u>Sawtimber</u> (MMBF)	<u>Other Products</u> (MMBF)
Regeneration Harvest:		
Clearcut	3.8	0
Shelterwood and Seed Tree		
- Preparatory Cut	1.42	0
- Seed Cut	.47	0
- Removal Cut	.11	0
Selection	0	0
Intermediate Harvest:		
Commercial Thinning	.78	0
Salvage/Sanitation	0	2.5
Totals	3.16	2.5

	<u>Additional Sales</u>	
	<u>Sawtimber</u> (MMBF)	<u>Other Products</u> (MMBF)
Total For All Harvest Methods	0	0

Allowable Sale Quantity	3.16 (MMBF)	2.50 (MMBF)
Timber Sale Program Quantity	3.16 (MMBF)	2.50 (MMBF)

FIGURE A-2

LONG-TERM SUSTAINED-YIELD OVER 150-YEAR HORIZON
ALLOWABLE SALE QUANTITY BY SPECIES OVER 50-YEAR HORIZON

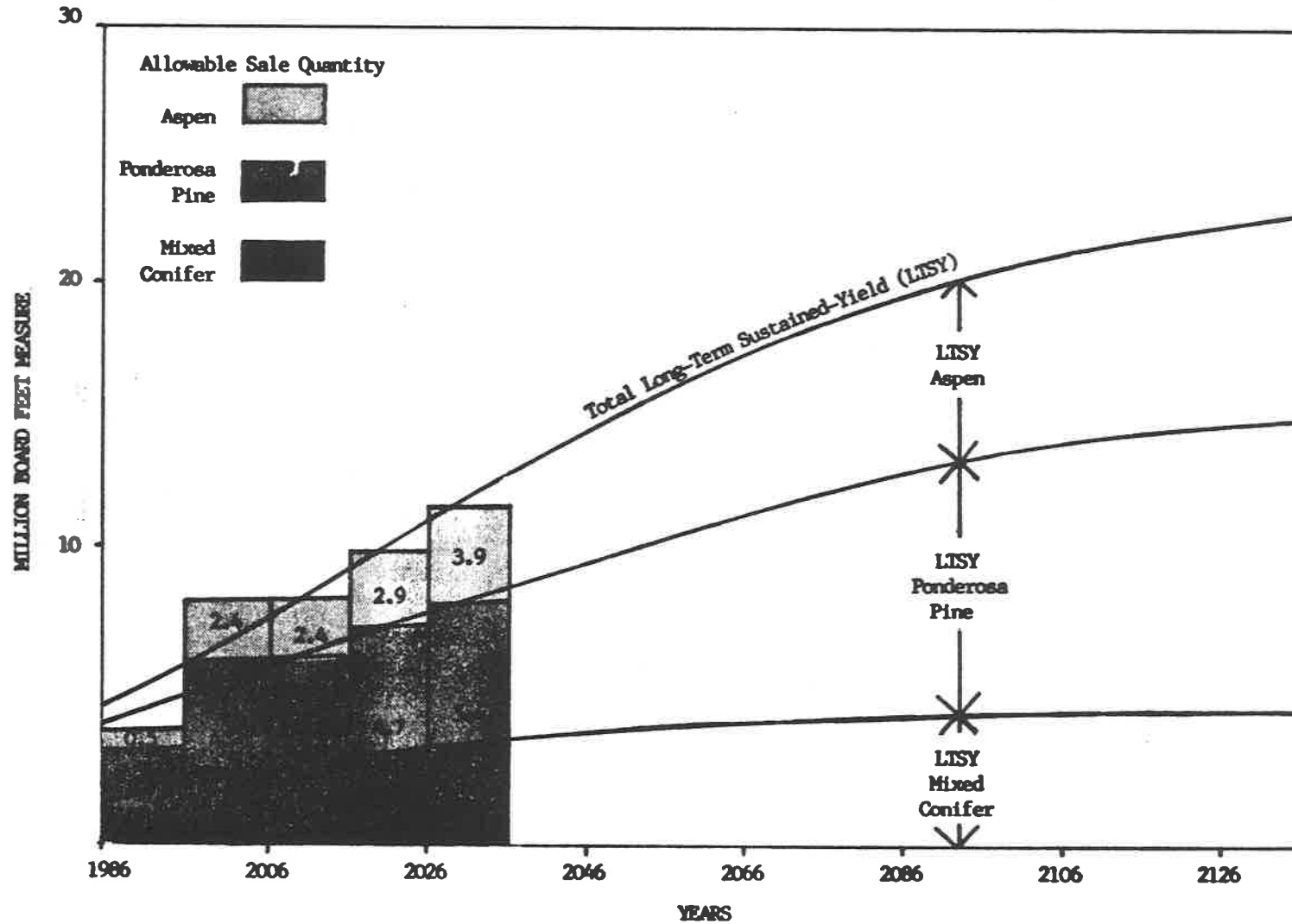


TABLE A-10

PRESENT AND FUTURE FOREST CONDITIONS

	<u>Unit of Measure</u>	<u>Suitable Land</u>
Present Forest:	MCF	4,778.0
Growing Stock	MHF	2,140.2
Live Cull	MCF	- - -
	MHF	15.0
Salvable Dead	MCF	120.0
	MHF	20.0
Annual Net Growth	MCF	84.0
	MHF	14.9
Annual Mortality	MCF	31.4
	MHF	5.8
Future Forest:		
Growing Stock	MCF	5,500.0
Annual Net Growth	MCF	150.0
Rotation Age	Years 120 to 140	
Age Class Distribution Acres	<u>Age Class</u>	<u>Present Forest</u> <u>Future Forest</u>
(Suitable Lands)	Mature Sawtimber	264,721 165,625
	Immature Sawtimber	92,292 110,416
	Seed-Saps	11,042 92,014

TABLE A-11

SILVICULTURAL PRACTICE
(ANNUAL AVERAGE IN FIRST DECADE FOR SUITABLE ACRES)

<u>Practice</u>	<u>Acres</u>
Regeneration Harvest	
Clearcut	80
Shelterwood	
- Preparation Cut	300
- Seed Cut	100
- Removal Cut	28
Intermediate Harvest	
Commercial Thin	165
Timber Stand Improvement	725
Reforestation	78

TABLE A-12A

TIMBER SALE ACTIVITY SCHEDULE
(Major Sales)

Sale Name	Ranger District	Acres	Mgmt. Code	— Road —		— Species —		Year	Volume MMBF/Year	Total Major Sales MMBF/Year
				Construction Coll.	Local	Conifer	Aspen			
Four-Mile I	Sanpete	160	RNG	1.00	—	—	.60	1986	.60	
Roc Creek	Moab	220	TER	—	—	2.00	—	1986	2.00	
North Elks	Monticello	220	TER	—	—	1.00	—	1986	1.00	3.60
Four-Mile II	Sanpete	130	RNG	1.00	—	—	.60	1987	.60	
Rt. Fork Boulger	Price	40	TER	—	—	.40	—	1987	.40	
Chimney Park	Monticello	200	TER	—	—	.50	—	1987	.50	1.50
Timber Canyon	Sanpete	110	RNG	—	—	.80	—	1988	.80	
Spoon Creek	Ferron	25	RNG	—	—	—	.25	1988	.25	
Deadman	Monticello	200	TER	—	—	.50	—	1988	.50	1.55
Spoon Creek	Ferron	25	RNG	—	—	—	.25	1989	.25	
Spring City Tunnel	Sanpete	90	RNG	—	.50	.70	—	1989	.70	
Cap	Ferron	250	TER	—	—	.50	—	1989	.50	
Rolfson Reservoir	Price	40	TER	—	—	.20	—	1989	.20	
Sawmill Pond	Moab	360	TER	—	1.00	2.00	—	1989	2.00	
Drift Trail	Monticello	200	TER	—	—	.50	—	1989	.50	4.15
Spoon Creek	Ferron	25	RNG	—	—	—	.25	1990	.25	
Ephraim Canyon	Sanpete	800	RNG	.50	—	1.50	.50	1990	2.00	
Seeley Creek	Price	40	TER	—	—	.30	—	1990	.30	
Duck Lake	Monticello	250	TER	—	—	.50	—	1990	.50	3.05
Spoon Creek	Ferron	25	RNG	—	—	—	.25	1991	.25	
Birch Canyon	Sanpete	800	RNG	.50	—	2.00	.40	1991	2.40	
Browns Canyon	Ferron	250	TER	—	—	.35	—	1991	.35	
Clear Creek	Price	60	TER	—	—	.40	—	1991	.40	
Sinbad Ridge I	Moab	140	TER	2.00	—	2.40	—	1991	2.40	
Gooseberry G.S.	Monticello	400	TER	—	—	.70	—	1991	.70	6.50
Spoon Creek	Ferron	25	RNG	—	—	—	.25	1992	.25	
Cap	Ferron	250	TER	—	—	.50	—	1992	.50	
Patton Reservoir	Sanpete	1,000	RNG	—	—	2.50	.50	1992	3.00	
Trough Springs I	Price	30	TER	—	—	.20	—	1992	.20	
Duck Lake II	Monticello	500	TER	—	—	.70	—	1992	.70	4.65
Spoon Creek	Ferron	25	RNG	—	—	—	.25	1993	.25	
Burnt Hill	Sanpete	800	RNG	—	—	2.00	.40	1993	2.40	
Rt. Fork Swen's	Price	30	RNG	—	—	.20	—	1993	.20	
Guard Station	Monticello	150	TER	.50	—	.50	—	1993	.50	3.35
Spoon Creek	Ferron	25	RNG	—	—	—	.25	1994	.25	
Winter Qtrs. Ridge	Price	30	RNG	—	—	.20	—	1994	.20	
Sinbad Ridge II	Moab	140	TER	1.00	—	2.50	—	1994	2.50	
Ute Corral	Monticello	190	TER	—	—	.50	—	1994	.50	3.45
Spoon Creek	Ferron	25	RNG	—	—	—	.25	1995	.25	
Trough Springs II	Price	30	TER	—	—	.20	—	1995	.20	
Little Notch I	Monticello	250	TER	—	—	.40	—	1995	.40	.85
Total Major Sales		8,560				27.65	5.00			32.65

TABLE A-12B

TIMBER SALE ACTIVITY SCHEDULE
 (Total Sales, Including Major Sales)

Sales/ Ranger District	Acres	Volume MME/Year									
		1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Total Major Sales	8,560	3.60	1.50	1.55	4.15	3.05	6.50	4.65	3.35	3.45	.85
Small Sale Program											
Sanpete	200	.10	.10	.10	.10	.10	.10	.10	.10	.10	.10
Ferron	400	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20
Price	200	.10	.10	.10	.10	.10	.10	.10	.10	.10	.10
Moab	320	.10	.20	.20	.10	.20	.10	.20	.20	.10	.20
Monticello	200	.10	.10	.10	.10	.10	.10	.10	.10	.10	.10
Total Small Sales	1,320	.60	.70	.70	.60	.70	.60	.70	.70	.60	.70
Fuelwood Program											
Sanpete	2,000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ferron	1,200	.60	.60	.60	.60	.60	.60	.60	.60	.60	.60
Price	840	.50	.50	.40	.40	.40	.40	.40	.40	.40	.40
Moab	200	.10	.10	.10	.10	.10	.10	.10	.10	.10	.10
Monticello	200	.10	.10	.10	.10	.10	.10	.10	.10	.10	.10
Total Fuelwood Sales	4,440	2.30	2.30	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20
Total All Sales	14,320	6.50	4.50	4.45	6.95	5.95	9.30	7.55	6.25	6.25	3.75

SOIL ACTIVITY SCHEDULE

TABLE A-13

<u>Year</u>	<u>Location</u>	<u>Acres</u>	<u>Intensity Level</u>
1985	Manti Division	233,613	Order 3
1986	Manti Division	233,600	Order 3
1987	Final correlation and manuscript for the Mantl Division SRI.		
1988	Submit Mantl Division SRI manuscript and maps for publication. Initiate Order 3 Soil Survey on the Monticello District.		
1989	Monticello District	184,563	Order 3
1990	Monticello District	184,563	Order 3
1991	Submit Monticello District SRI manuscript and maps for publication.		
1992-1995	Conduct Order 1 and Order 2 mapping as needed for project work and update existing Order 3 Soil Surveys as necessary.		

WATERSHED ACTIVITY SCHEDULE

The Watershed Activity Schedule contains the following watershed programs:

- Watershed Condition Survey (Table A-14) provides a list and schedule of the watersheds for which condition, flood frequency, and sediment yields will be calculated.
- Watershed Improvement (Table A-15) provides a list of the projects included in the Watershed Improvement Needs Inventory (WINI) and a schedule for their implementation.
- Determination of Instream Flow Needs (Table A-16) provides a list and schedule for determining the instream flow needs for Forest purposes on major watersheds.

TABLE A-14

WATERSHED CONDITION SURVEY (Includes Estimates of Flood Frequencies and Sediment Yields)

Ranger District	Item	No.	Watershed Name	No.	Subwatershed Name	Survey Area (Acres)	Date to Complete the Survey
Price	Done	04	Huntington Canyon	A11	---	126,700	1984
Price	In Progress	02	Price River	A11	---	80,000	1985
Ferron	1	05	Straight Canyon	502	Lowry Water	34,300	1986
Ferron	2	05	Straight Canyon	600	Below Joes Valley	16,600	1986
Sanpete	3	03	San Pitch	A11	---	167,000	1987
Sanpete and Price	4	01	Upper Spanish Fork	A11	---	81,300	1988
Monticello	5	10	Indian Creek	A11	---	91,000	1989
Monticello	6	12	San Juan	A11	---	133,000	1989
Ferron	7	05	Straight Canyon	501	Seeley Canyon	22,800	1990
Ferron	8	05	Straight Canyon	500	Reeder Canyon	8,500	1990
Moab	9	18	Paradox Creek	A11	---	47,000	1991
Ferron	10	06	Ferron Canyon	A11	---	115,000	1992
Sanpete	11	16	Chicken Creek	A11	---	49,000	1993
Ferron	12	07	Muddy Creek	A11	---	85,000	1993
Moab	13	08	Moab	A11	---	78,000	1994
Moab	14	09	Delores River	A11	---	45,000	1995
Monticello	15	13	Montezuma Creek	A11	---	30,000	1996

TABLE A-15

WATERSHED IMPROVEMENT

WINI Inventory Project Number	Ranger District	Project Name	Watershed	Subwatershed Containing The Project	Subwatershed Evaluations		Project Field Evaluation Phase Date	Plan and Environmental Assessment (Year)	Treat- ment (Year)	Acres for Treatment	Management Area
					Date	Area					
2-23	2	Battlegrounds	05 Straight Canyon	408 Rolfsen Canyon	1984	2,501		1985	1985	600	CWR
3-21	3	Rolfson Canyon	04 Huntington Cyn.					1984	1986		WPE
3-22	3	Staker #1	04 Huntington Cyn.	409 Staker Canyon			1984	1985	1987	300	WPE
3-24	3	Staker #2	04 Huntington Cyn.	409 Staker Canyon	1984	2,400	1984	1985	1987	50	WPE
3-25	3	Jordan #1	04 Huntington Cyn.	410 Jordan Canyon			1985	1986	1988	500	WPE
3-26	3	Jordan #2	04 Huntington Cyn.	410 Jordan Canyon	1985	5,400	1985	1986	1989	700	WPE
3-15											
3-14	3	North Hughes 263	04 Huntington Cyn.	412 North Hughes	1985	1,400	1985	1986-1987	1990	320	WPE
2-2	2	Bacon Rind	05 Straight Canyon	401 Bacon Rind	1986	1,870	1986	1987	1990	300	WPE
				301 Reid & Neilson Swale							
2-31	2	Swales	05 Straight Canyon	301 Cox Swale	1986	2,210	1986	1987-1989	1991	650	WPE
2-36	2	Clay Banks	05 Straight Canyon	419 Clay Banks, Swale	1986	3,900	1987	1988-1990	1992	320	WPE
1-15	1	Hogaard	03 San Pitch	502 Manti Canyon	1987	18,000	1988	1989	1992	420	RNG
3-19	3	Lake Canyon	04 Huntington Cyn.	501 Left Fork Huntington	1988	30,000	1989	1990	1993	70	WPE
1-20	1	Blue Meadows	03 San Pitch	413 Six Mile Canyon	1988	16,500	1989	1990	1993	420	RNG
3-9	3	Fish Creek	02 Price River	600 Price River	1989	39,500	1990	1991	1994	220	SPR
5-1	5	Round Mountain	10 Indian Creek	412 Davis Canyon	1990	7,441					
				411 Stevens Canyon	1990	8,160					
			12 San Juan	418 S. Cottonwood Cyn.	1990	8,150	1979	1980-1992	1994	300	WPE
3-28	3	Seeley Canyon	04 Huntington Cyn.	410 Seeley Canyon	1991	5,400	1991	1992	1995	300	WPE
1-21	1	Six Mile #3	03 San Pitch	413 Six Mile Canyon	1988	16,500	1991	1992	1995	50	RNG
1-18	1	Six Mile #1	03 San Pitch	413 Six Mile Canyon	1988	16,500	1991	1992	1995	30	RNG
1-19	1	Six Mile #2	03 San Pitch	413 Six Mile Canyon	1988	16,500	1991	1992	1995	45	RNG
3-13	3	Boulger Reservoir	04 Huntington Cyn.	402 Boulger Canyon	1991	3,990	1991	1992	1995	94	
2-3	2	Boulger Canyon #1	05 Straight Canyon	402 Boulger Canyon	1992	2,160	1992	1993	1996	94	WPE
2-4	2	Boulger Canyon #2	05 Straight Canyon	402 Boulger Canyon	1992		1992	1993	1996	330	WPE
2-9	2	Lowry Water	05 Straight Canyon	502 Lowry Water	1992	34,300	1992	1993	1996	96	WPE
2-26	2	Danish Knoll	05 Straight Canyon	415 Seeley Creek	1993	10,600	1993	1994	1997	110	WPE
3-31	3	Blind Canyon South	04 Huntington Cyn.	600 Huntington Canyon	1993	80,000	1993	1994	1997	410	
3-31	3	Blind Canyon South	04 Huntington Cyn.	600 Huntington Canyon	1993	80,000	1993	1995	1998	520	
2-6	2	Fly Canyon	05 Straight Canyon	502 Lowry Water	1994	34,300	1994	1996	1999	45	WPE
2-15	2	Sanpete Mountain	05 Straight Canyon	412 Reeder Canyon	1994	3,690					
			03 San Pitch	407 Canal Canyon	1994	5,710	1994	1996	1999	135	WPE
2-17	2	Black Canyon	05 Straight Canyon	405 Black Canyon	1995	8,260	1995	1996	1999	192	TBR
2-5	2	Cedar Creek	05 Straight Canyon	405 Black Canyon	1995	8,260					
			03 San Pitch	420 Cedar Creek	1995	1,730	1995	1996	1999	110	
2-33	2	The Cove	06 Ferron Canyon	401 Bear Creek Cove Creek	1996	870	1996	1997	2000	170	WPE

TABLE A-16

DETERMINATION OF INSTREAM FLOW NEEDS

Year	Watershed Name	Watershed No.	Counties
Completed	Huntington Creek	04	Sanpete, Emery
Completed	Straight Canyon	05	Sanpete, Emery
Completed	Ferron	06	Sanpete, Emery
Completed	Muddy Creek	07	Sanpete, Emery
1985	Price River	02	Carbon, Emery, Utah
1986	San Pitch River	03	Sanpete
1986	Upper Salina	17	Sanpete
1987	Chicken Creek	16	Juab, Sanpete
1987	Salt Creek	14	Juab, Sanpete
1987	Fountain Green	15	Juab, Sanpete
1988	Upper Spanish Fork	01	Carbon, Sanpete, Utah
1989	Moab	08	Grand, San Juan
1989	Paradox	18	San Juan, Utah, Montrose
1989	Delores River	09	Grand, San Juan, Utah, Montrose
1990	San Juan River	12	San Juan
1990	Montezuma Creek	13	San Juan
1990	Indian Creek	10	San Juan
1991	Grand Gulch	19	San Juan
1992	Dark Canyon	11	San Juan

LANDSLIDE AND FLOOD DAMAGE REPAIR ACTIVITY SCHEDULE

As a result of the 1983 and 1984 flooding and landslide events, the Forest has identified the damage repair work and additional cost needs. Table A-17 (a detailed account of work activity needs that are quantified) and Table A-18 (a cost summary by activities) exhibit a ten-year program beyond the normal resource action programs identified in the Forest Plan. These actions are necessary to restore the Forest's resources and facilities to approximate pre-flood conditions. Some select inventory needs are included to further refine and analyze conditions that exist and to aid the Forest predictive capabilities of these damaged watersheds so other resource programs can continue in a logical manner.

The 1983 and 1984 flood events have resulted in a tremendous impact and strain on the Forest resource, permittees, and affected downstream communities and resources. It has affected the long-term capability of the Forest to handle the normal recurring output programs, and to meet public demands. The work program proposed in the respective table is designed to complete the work over a ten-year period and the added costs have been incorporated into the analyses.

The Forest-wide Flood Damage Repair Reports of 1983 and 1984 identified the damage to the respective resources and facilities that occurred. Table A-18 is a summary of the two respective reports for the work that is up and beyond the eligibility for the Emergency Watershed Protection (Section 403 of the Agriculture Credit Act) Program and ERFO (Emergency Relief Federally Owned) funding from the Federal Highway Administration. This flood damage repair program is scheduled over a ten-year period to keep within current manpower constraints. It could be accelerated into a shorter time frame, but additional staffing would be needed to carry forth this program along with the normal program of work.

With the present conditions of active sliding, high ground water, and predictions of continued above normal precipitation, the priorities or timing or work for any specific year could change to meet changing conditions and refinement and updated priorities.

Some of the identified resource work activities could move forward independently of the others. However, most of the program is multi-functional in nature and coordinated. To delete or delay one activity could affect the timing and outcome of the other activities. The fisheries stream habitat repair (C03) needs and the watershed improvement program (F03) of debris removal, riparian vegetation, etc., should go forth "hand in glove", drainage by drainage, so these respective activities can compliment each other and provide for increased cost effectiveness of restoring the ravaged stream channels and fisheries resource.

Projects listed on Table A-17 are based on the initial flood damage reports. Each project will require on-site evaluation prior to implementation to assure that the effects of natural repair processes and completed projects at or adjacent to the project site are considered in project design.

TABLE A-17

FLOOD DAMAGE REPAIR ACTIVITY SCHEDULE

MIN CODE	RANGER DISTRICT	PROJECT NAME	TYPE OF TREATMENT	MILES	STRUCTURES	ACRES	TREATMENT YEAR	MANAGEMENT AREA
A05	1	Chicken Creek C.G. Repair	Design				86	DRS
A05	1	Pinchot C.G. Replacement	Design				87	DRS RPN
A05	1	Oowah C.G. Replacement	Design				88	DRS
A05	2	Ferron Canyon Picnic Area	Design				89	DRS
A05	3	Forks of Huntington Canyon C.G.	Design Water System				90	DRS RPN SPR RNC
A05	1	Chicken Creek C.G. & Water System	Reconstruction				87	GWR RNC
A05	1	Pinchot C.G. Replacement	Reconstruction				88	RPN RNC
A05	1	Oowah C.G. Replacement	Reconstruction				89	DRS
A05	2	Ferron Canyon Picnic Area Replacement	Reconstruction				90	DRS
A05	3	Forks of Huntington Can. C.G. Water System	Replacement				91	DRS RPN SPR RNC
A10	1	Oak Creek Trail No. 5053	Design	1.2			87	RNC
A10	1	Dry Creek Trail No. 5048	Design	0.8			87	GWR RNC
A10	1	White Ledge Fork Trail No. 5096	Design	0.8			87	RNC
A10	1	Patten Trail No. 5120	Design	1.4			87	RNC TBR
A10	1	Birch Creek Trail No. 5115	Design	1.9			87	RNC
A10	1	Narrow Trail No. 5125	Design	4.6			87	TBR RNC
A10	4	Oowah Lake Trail No. 5141	Design	3.6			88	RNC TBR
A10	1	Oak Creek Trail No. 5053	Construction	1.7			88	RNC
A10	1	Dry Creek Trail No. 5048	Construction	0.8			88	GWR RNC
A10	1	White Ledge Fork Trail No. 5096	Construction	0.8			88	RNC
A10	1	Patten Trail No. 5120	Construction	1.4			88	RNC TBR
A10	1	Birch Creek Trail No. 5115	Construction	1.9			88	RNC
A10	1	Narrow Trail No. 5125	Construction	4.6			88	TBR RNC
A10	4	Oowah Lake Trail No. 5141	Construction	3.6			89	RNC TBR
C03	4	Oowah Reservoir Dam Replacement	Construction		1		87	DRS
C03	1	Six-Mile Ponds Dam Replacement	Construction		1		88	UDM RNC
D02	S.O.	Range Allotment Inventory	Allotment Map Update			4,500	86	
D02	S.O.	Range Allotment Inventory	Allotment Map Update			4,500	87	
D05		Range Structural Facility	Replacement	16			86	
E00	S.O.	Timber Resource Damage	Inventory			8,000	87	

TABLE A-17 (Continued)

FLOOD DAMAGE REPAIR ACTIVITY SCHEDULE

MIN CODE	RANGER DISTRICT	PROJECT NAME	TYPE OF TREATMENT	MILES	STRUCTURES	ACRES	TREATMENT YEAR	MANAGEMENT AREA
P01	S.O.	Accelerated Soil Resource	Inventory (Manti Div.)			200,000	86	
P01	S.O.	Accelerated Soil Resource	Inventory (Manti Div.)			200,000	87	
P01	S.O.	Accelerated Soil Resource	Inventory (San Pitch)			69,000	88	
P01	S.O.	Watershed Landslide Evaluation	Inventory & Report			40,000	87	
P03	1	Chicken Creek Near Levan	Watershed Rehab.	0.0	0	25	86	RMC
P03	1	Chicken Creek Near Levan	Riparian Reveg.	2.1	0	8	86	RPM
P03	1	Chicken Creek Near Levan	Remove Debris	5.8	0	71	86	RPM
C03082	1	Chicken Creek Near Levan	Fish Habitats	8.7	486	0	86	RPM
P03	1	Fairview Canyon	Watershed Rehab.	0.0	0	80	87	
C03082	1	Fairview Canyon	Fish Habitats	2.2	150	0	87	RPM
P03	1	Fairview Canyon	Remove Debris	6.6	0	27	87	RPM
P03	1	Manti Canyon	Remove Debris	2.0	0	7	87	RPM
C03082	1	Manti Canyon	Fish Habitats	6.6	226	0	87	RPM
P03	1	Ephraim Canyon	Remove Debris	1.1	0	4	87	RPM
C03082	1	Ephraim Canyon	Fish Habitats	5.1	110	0	87	RPM
P03	1	Thistle Creek	Remove Debris	4.8	0	20	88	RPM
P03	1	Rock Creek	Riparian Reveg.	.3	0	1	88	RPM
P03	1	Rock Creek	Remove Debris	1.9	0	8	88	RPM
P03	1	Oak Creek Near Spring City	Remove Debris	4.0	0	9	88	RPM
C03082	1	Oak Creek Near Spring City	Fish Habitats	5.5	237	0	88	RPM
P03	1	Canal Canyon	Remove Debris	1.8	0	7	88	RPM
P03	3	North Hughes Canyon	Riparian Reveg.	.5	0	2	88	RPM
P03	3	North Hughes Canyon	Remove Debris	.6	0	2	88	RPM
P03	3	Eccles Canyon	Remove Debris	.3	0	1	88	RPM
P03	1	Oak Creek Near Fairview	Remove Debris	1.0	0	4	89	RPM
P03	1	Oak Creek Near Fairview	Riparian Reveg.	2.7	0	11	89	RPM
C03082	1	Oak Creek Near Fairview	Fish Habitats	4.0	175	0	89	RPM
P03	1	Dry Creek Near Fairview	Remove Debris	1.0	0	4	89	RPM
C03082	1	Dry Creek Near Fairview	Fish Habitats	3.9	175	0	89	RPM
P03	3	Lake Fork	Remove Debris	5.4	0	42	89	RPM
P03	3	Lake Fork	Riparian Reveg.	5.9	0	24	89	RPM
C03082	3	Lake Fork	Fish Habitats	8.4	242	0	89	RPM

TABLE A-17 (Continued)

FLOOD DAMAGE REPAIR ACTIVITY SCHEDULE

NTN CODE	RANGER DISTRICT	PROJECT NAME	TYPE OF TREATMENT	MILES	STRUCTURES	ACRES	TREATMENT YEAR	MANAGEMENT AREA
F03	3	Left Fork of Huntington Creek	Riparian Reveg.	.8	0	3	90	RPN
F03	3	Left Fork of Huntington Creek	Remove Debris	.9	0	7	90	RPN
C03082	3	Left Fork of Huntington Creek	Fish Habitats	18.2	428	0	90	RPN
C03082	1	Twelve Mile Creek	Fish Habitats	7.7	408	0	91	RPN
F03	1	Twelve Mile Creek	Remove Debris	9.7	0	116	91	RPN
C03082	1	Twelve Mile Creek	Fish Habitats	7.6	408	0	92	RPN
F03	1	Twelve Mile Creek	Remove Debris	8.0	0	32	92	RPN
F03	1	Six-Mile Canyon	Remove Debris	6.3	0	25	93	RPN
C03082	1	Six-Mile Canyon	Fish Habitats	9.4	332	0	93	RPN
F03	1	Little Clear Creek	Riparian Reveg.	1.6	0	6	93	RPN
F03	1	Little Clear Creek	Remove Debris	4.9	0	33	93	RPN
F03	1	Little Clear Creek	Watershed Rehab.			20	93	RPN
F03	2	Seely Creek	Remove Debris	.6	0	2	94	RPN
C03082	2	Seely Creek	Fish Habitats	2.5	72	0	94	RPN
F03	2	Seely Creek	Riparian Reveg.	4.0	0	16	94	RPN
F03	2	Reader Canyon	Remove Debris	.2	0	1	94	RPN
F03	3	Winter Quarters Creek	Remove Debris	.1	0	1	94	RPN
F03	3	Woods Canyon	Remove Debris	.7	0	3	94	RPN
C03082	3	Woods Canyon	Fish Habitats	1.0	25	0	94	RPN
F03	3	Pontown Creek	Remove Debris	.1	0	1	94	RPN
F03	3	Pontown Creek	Riparian Reveg.	2.0	0	8	94	RPN
C03082	3	Pontown Creek	Fish Habitats	2.6	75	0	94	RPN
C03082	3	French Creek	Fish Habitats	1.2	32	0	94	RPN
F03	3	French Creek	Riparian Reveg.	1.2	0	5	94	RPN
C03082	1	Deep Creek	Fish Habitats	3.0	260	0	94	RPN
F03	1	Deep Creek Near Levan	Remove Debris	3.2	0	13	94	RPN
F03	2	Ferron Canyon	Remove Debris	2.0	0	8	95	RPN
C03082	3	Eccles Canyon	Fish Habitats	.3	13	0	95	RPN
C03082	2	Muddy Creek	Fish Habitats	1.3	46	0	95	RPN
F03	2	Muddy Creek	Remove Debris	1.9	0	7	95	RPN

TABLE A-17 (Continued)

FLOOD DAMAGE REPAIR ACTIVITY SCHEDULE

MIN CODE	RANGER DISTRICT	PROJECT NAME	TYPE OF TREATMENT	MILES	STRUCTURES	ACRES	TREATMENT YEAR	MANAGEMENT AREA
F03	2	Muddy Creek	Riparian Reveg.	4.6	0	18	95	RPN
F03	4	Mill Creek at Moab	Remove Debris	.5	0	2	95	RPN
C03082	4	Mill Creek at Moab	Fish Habitats	2.0	87	0	95	RPN
F03	3	Fish Creek	Remove Debris	.1	0	1	95	RPN
C03082	3	Tie Fork Canyon	Fish Habitats	.1	3	0	95	RPN
F03	3	Tie Fork Canyon	Remove Debris	.1	0	1	95	RPN
F03	3	Blind Canyon	Watershed Rehab.	0.0	0	2	95	RPN
F03	3	Mill Fork Canyon (Huntington Creek)	Watershed Rehab.	0.0	0	2	95	RPN
F03	3	Mill Fork Canyon (Huntington Creek)	Remove Debris	.5	0	2	95	RPN
C03082	2	Lowry Water	Fish Habitats	.1	5	0	95	RPN
F03	2	Lowry Water	Remove Debris	.5	0	2	95	RPN
F03	2	Lowry Water	Riparian Reveg.	.5	0	2	95	RPN
F03	3	Little Bear Canyon	Remove Debris	.1	0	1	95	RPN
F03	1	Four Mile Canyon	Watershed Rehab.	0.0	0	25	95	RPN
F03	1	Four Mile Canyon	Remove Debris	.3	0	1	95	RPN
C03082	1	Four Mile Creek Near Levan	Fish Habitats	1.8	96	0	95	RPN
F03	3	York Canyon	Remove Debris	1.1	0	4	95	RPN
F03	3	Mill Fork (North End)	Remove Debris	.2	0	1	95	RPN
F03	3	Mill Fork (North End)	Riparian Reveg.	.2	0	1	95	RPN
F03	1	Log Hollow/North Canyon	Remove Debris	1.0	0	4	95	RPN
L02	2	Ferron-Mayfield Road No. 50022	Preconstruction Eng.	22.3	0	0	86	
L06	2	Miller's Flat Road No. 50114	Preconstruction Eng.	18.0	0	0	87	
L06	2	Southside Ferron Mountain Road No. 43	Preconstruction Eng.	18.2	0	0	88	
L06	3	Lake Fork Indianola No. 50070	Preconstruction Eng.	20.2	0	0	89	
L06	1	Maple Canyon Road No. 50066	Preconstruction Eng.	4.7	0	0	90	
L06	4	Dark Canyon Lake No. 50129	Preconstruction Eng.	12.9	0	0	90	
L06	1	Six Mile Road No. 50047	Preconstruction Eng.	13.0	0	0	90	
L06	1	Chicken Creek Road No. 50101	Preconstruction Eng.	13.6	0	0	91	
L10	1	Beaver Creek Road No. 50290	Preconstruction Eng.	6.8	0	0	92	
L06	3	Browns Peak Road No. 50125	Preconstruction Eng.	11.4	0	0	93	
L10	1	Dry Creek Road No. 50217	Preconstruction Eng.	1.5	0	0	94	
L10	3	Intex Mine Road No. 50012	Preconstruction Eng.	2.0	0	0	94	

TABLE A-17 (Continued)

FLOOD DAMAGE REPAIR ACTIVITY SCHEDULE

MIN CODE	RANGER DISTRICT	PROJECT NAME	TYPE OF TREATMENT	MILES	STRUCTURES	ACRES	TREATMENT YEAR	MANAGEMENT AREA
L03	2	Ferron-Mayfield Road No. 50022	Construction Eng.	22.3	0	0	87	RNC MMA GWR
L07	2	Miller's Flat Road No. 50114	Construction Eng.	18.0	0	0	88	MMA RNC
L07	2	Southside Ferron Mountain Road No. 43	Construction Eng.	18.2	0	0	89	RNC TBR GWR
L07	3	Lake Fork Indianola No. 50070	Construction Eng.	20.2	0	0	90	RNC TBR GWR WPE SPR
L07	1	Maple Canyon Road No. 50066	Construction Eng.	4.7	0	0	91	RNC TBR WPE
L07	4	Dark Canyon Lake No. 50129	Construction Eng.	12.9	0	0	91	RNC TBR
L07	1	Six Mile Road No. 50047	Construction Eng.	13.0	0	0	91	RNC TBR GWR WPE SPR
L07	1	Chicken Creek Road No. 50101	Construction Eng.	13.6	0	0	92	RNC GWR WPE SPR
L11	1	Beaver Creek Road No. 50290	Construction Eng.	6.8	0	0	93	RNC TBR GWR WPE SPR
L07	3	Browns Peak Road No. 50125	Construction Eng.	11.4	0	0	94	RNC GWR
L11	1	Dry Creek Road No. 50217	Construction Eng.	1.5	0	0	95	RNC
L11	3	Intex Mine Road No. 50012	Construction Eng.	2.0	0	0	95	RNC TBR
L05	2	Ferron-Mayfield Road No. 50022	Road Reconstruction	22.3	0	0	87	RNC SPR GWR UDM
L09	2	Miller's Flat Road No. 50114	Road Reconstruction	18.0	0	0	88	RNC TBR GWR
L09	2	Southside Ferron Mountain Road No. 43	Road Reconstruction	18.2	0	0	89	RNC TBR GWR
L09	3	Lake Fork Indianola No. 50070	Road Reconstruction	20.2	0	0	90	RNC TBR GWR WPE SPR
L09	1	Maple Canyon Road No. 50066	Road Reconstruction	4.7	0	0	91	RNC TBR WPE
L09	4	Dark Canyon Lake No. 50129	Road Reconstruction	12.9	0	0	91	RNC TBR
L09	1	Six Mile Road No. 50047	Road Reconstruction	13.0	0	0	91	RNC TBR GWR WPE SPR
L09	1	Chicken Creek Road No. 50101	Road Reconstruction	13.6	0	0	92	RNC GWR WPE SPR
L13	1	Beaver Creek Road No. 50290	Road Reconstruction	6.8	0	0	93	RNC TBR GWR WPE SPR
L09	3	Browns Peak Road No. 50125	Road Reconstruction	11.4	0	0	94	RNC GWR
L13	1	Dry Creek Road No. 50217	Road Reconstruction	1.5	0	0	95	RNC
L13	3	Intex Mine Road No. 50012	Road Reconstruction	2.0	0	0	95	RNC TBR
L19749	S.O.	Arterial Roads Maintenance Level 4	Road Maintenance	14.0	0	0	86	
L19749	S.O.	Major Collector Maintenance Level 4	Road Maintenance	99.9	0	0	86	
L19748	S.O.	Arterial Roads Maintenance Level 3	Road Maintenance	22.4	0	0	86	
L19749	S.O.	Minor Collector Maintenance Level 4	Road Maintenance	50.0	0	0	87	

TABLE A-17 (Continued)

FLOOD DAMAGE REPAIR ACTIVITY SCHEDULE

MNH CODE	RANGER DISTRICT	PROJECT NAME	TYPE OF TREATMENT	MILES	STRUCTURES	ACRES	TREATMENT YEAR	MANAGEMENT AREA
L19748	S.O.	Major Collector Maintenance Level 3	Road Maintenance	99.9	0	0	87	
L19748	S.O.	Minor Collector Maintenance Level 3	Road Maintenance	99.9	0	0	88	
L19747	S.O.	Minor Collector Maintenance Level 2	Road Maintenance	99.9	0	0	88	
L19749	S.O.	Local Road Maintenance Level 4	Road Maintenance	75.0	0	0	89	
L19748	S.O.	Local Road Maintenance Level 3	Road Maintenance	99.9	0	0	89	
L19747	S.O.	Local Road Maintenance Level 2	Road Maintenance	99.9	0	0	90	
L19746	S.O.	Local Road Maintenance Level 1	Road Maintenance	99.9	0	0	90	
L19749	S.O.	Arterial Roads Maintenance Level 4	Road Maintenance	14.0	0	0	91	
L19749	S.O.	Major Collector Maintenance Level 4	Road Maintenance	99.9	0	0	91	
L19748	S.O.	Arterial Roads Maintenance Level 3	Road Maintenance	22.4	0	0	91	
L19749	S.O.	Minor Collector Maintenance Level 4	Road Maintenance	50.0	0	0	92	
L19748	S.O.	Major Collector Maintenance Level 3	Road Maintenance	99.9	0	0	92	
L19748	S.O.	Minor Collector Maintenance Level 3	Road Maintenance	99.9	0	0	93	
L19747	S.O.	Minor Collector Maintenance Level 2	Road Maintenance	99.9	0	0	93	
L19748	S.O.	Local Road Maintenance Level 4	Road Maintenance	75.0	0	0	94	
L19747	S.O.	Local Road Maintenance Level 3	Road Maintenance	99.9	0	0	94	
L19746	S.O.	Local Road Maintenance Level 2	Road Maintenance	99.9	0	0	95	
L19749	S.O.	Local Road Maintenance Level 1	Road Maintenance	99.9	0	0	95	
P04	S.O.	Initial Attack Helicopter Until Primary Road Access is Restored	Fire Protection				86	
P04	S.O.	Initial Attack Helicopter Until Primary Road Access is Restored	Fire Protection				87	
P04	S.O.	Initial Attack Helicopter Until Primary Road Access is Restored	Fire Protection				88	

TABLE A-18

FLOOD DAMAGE COST REPAIR SUMMARY (\$M)
BY FISCAL YEAR AND MANAGEMENT ACTIVITIES

MIN CODE	ACTIVITY DESCRIPTION	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	Total
A05	Recreation Facility and Site Design	70.0	52.0	35.0	87.0	9.0						253.0
A06	Recreation Facility and Site Construction (Replacement)		230.0	175.0	115.0	288.0	31.0					839.0
A10	Trail Reconstruction Design		11.0	4.0								15.0
A10	Trail Reconstruction			65.0	20.0							85.0
C03	Structural-Fisheries Dam Replacement		150.0	146.0								296.0
C03	Stream Structural Habitat Improvement in Conjunction With Watershed	291.6	292.1	142.1	355.5	256.5	244.9	244.9	199.8	278.7	150.3	2456.4
E00	Timber Resource Damage Inventory		30									30.0
D02	Range Resource Inventory	15.0	15.0									30.0
D05	Range Structural Improvement (Replacement)	115.0										115.0
F01	Inventory (Watershed and Landslide Evaluation)		40.0									40.0
F01	Inventory (Accelerated Soil Resource Inventory)	100.0	100.0	34.5								234.5
F03	Watershed Improvement (Rehabilitation in conjunction With Stream Fisheries)	25.1	27.5	34.9	43.5	5.9	34.6	20.0	74.0	26.7	182.4	474.6
L02 L06 L10	Arterial, Collector, and Local Road Preconstruction	10.0	35.0	30.0	10.0	55.0	8.0	12.0	7.0	3.0		170.0
L03 L07 L11	Arterial, Collector, and Local Road Construction Engineering		10.0	30.0	25.0	5.0	37.0	8.0	9.0	5.0	2.0	131.0
L05 L09 L13	Arterial, Collector, and Local Road Reconstruction		100.0	458.0	276.0	50.0	363.0	80.0	74.0	34.0	10.6	1445.6
L19	Road Operation (Maintenance - All Levels)	50.6	47.5	57.5	45.6	34.5	50.5	47.5	57.5	45.6	34.5	471.3
P04	Initial Attack Helicopter	80.0	80.0	80.0								240.0
	Total	757.3	1220.1	1292.0	977.6	703.9	769.0	412.4	421.3	393.0	379.8	7326.4

TABLE A-19

MINERALS AND GEOLOGY ACTIVITY SCHEDULE
FY 1986 Through FY 1995

Activity	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
COAL										
New Leases (EIS)		8*			8*			8*		
Leasing Actions (Non EIS)	12	12	12	12	12	12	12	12	12	12
Exploration	30	30	32	32	34	34	34	36	36	36
Development										
New Mines		1*		1*		1*		1*		1*
Mine Plan Repermitting	2	0	1	3	6	2	1	1	4	6
Mine Plan Amendments (EA)	7	7	7	7	7	7	7	7	7	7
Mine Plan Reviews	30	30	30	30	30	30	30	30	30	30
Abandoned Mine Reclamation	1	1	1	1	1	1	1	1	1	1
OIL AND GAS										
Leasing	150	150	150	150	150	150	150	150	150	150
Exploration	40	40	35	35	35	30	30	30	30	30
Drilling	7	7	7	7	7	7	7	7	7	7
Production Facilities	3	3	3	3	3	3	3	3	3	3
LOCATABLE MINERALS										
Exploration	40	45	45	50	55	55	45	40	35	30
Development	1	1	1	2	2	2	1	1	1	1
Claim Investigation	6	6	6	6	6	6	6	6	6	6
COMMON VARIETY MINERALS										
Permits (EA)	1	1	1	1	1	1	1	1	1	1
Permits (No EA)	9	9	9	9	9	9	9	9	9	9
GEOLOGIC RESOURCES AND SERVICES MAN-YEARS										
Minerals/Geology	10.5	11.3	11.4	11.0	12.2	11.8	10.6	11.3	11.2	10.4
Support	9.9	10.5	10.6	10.4	11.5	11.1	10.1	10.7	10.8	10.2

* 50 percent of work and cost carried over to the next fiscal year.

Support Service Elements

Activity Schedules for Support Service Elements are listed as follows:

<u>Element</u>	<u>Page</u>
Fire Management Activity Schedule	A-43
Lands Activity Schedule	A-49
Transportation Activity Schedule	A-55
Sign Program Activity Schedule	A-63
Facilities Activity Schedule	A-64

FIRE MANAGEMENT ACTIVITY SCHEDULE

PURPOSE - Fire Management is just one of the resource elements considered in the development of this Forest Plan. The purpose of this appendix is to establish the Fire Management portion of the Management Direction of the Forest Plan.

Fire Management direction has been developed by reviewing past and existing fire prevention, detection, and suppression programs in a comprehensive program called Fire Management Analysis and Planning Handbook (FSH 5109.19). This analysis reviews and seeks the most cost effective fire suppression program for the Forest. The analysis provides for an improved process for continuing fire management planning and assessment at the Forest level.

PROCEDURE - Fire Management Analysis and Planning Handbook provides four levels of analysis and planning of which three were used in the planning development. Fire Management Analysis Level I is an analysis of the management situation. The analysis uses information describing the current situation and inventory; current and historical fire and weather information; and program cost. Fire Management Analysis Level II is an evaluation of Fire Program options and program mixes. This process was used to find the most cost-efficient program. The most cost-efficient program is used in the implementation in the Fire Management Planning Level III. Fire Management Planning Level IV is the operational project evaluation.

The Forest was divided into two divisions for the analysis; Manti Division and LaSal Division. This decision was made because of the differences in the resources available, past fire occurrences, and urban interface.

The Forest was divided into two major fuel types. Fuel Model C and a combination of Fuel Model G and H. These areas were subdivided by division boundaries. Fuel Model G-H for the Manti Division and Fuel Model C for the LaSal Division.

Within the Forest protection system, this analysis identified two Fire Management Zones. They are listed by divisions, fuel model, average annual fire occurrence and average annual acreage burned (see Figure A-3).

<u>Division</u>	<u>Fuel Model</u>	<u>Average Annual Fire Occurrence</u>	<u>Annual Acreage Burned</u>
Manti	G-H	20	81
LaSal	C	29	57

Fire Management Zones - The fire management zones are further described with generalizations of fuels, weather, topography, suppression actions and urban interface.

1. Manti Division is a predominantly high-elevation zone that is comprised mostly of the Wasatch and Gunnison Plateaus, it has private land holdings within the fire management zone. The east and west margins of the plateaus are 3,000 to 6,500 feet above the valley floors providing some low and middle elevation zones.

The fuels within this area range from light to heavy loading depending upon fuel type, aspect and elevation.

Because of the elevation, moisture is generally received in adequate amounts from wet thundershowers to affect fire intensities.

FIGURE A-3



FUEL MANAGEMENT ZONES

Suppression actions are handled by District and Forest personnel.

Fires have been small with the largest fire in recent years being 400 acres. At times other Forests are called for suppression support.

2. LaSal Division is predominantly a middle elevation zone with areas of high elevation zone, within the peaks areas, and low elevation within canyon areas.

The fuels within this area range from light to moderate loadings with areas of insect-killed ponderosa pine, which could create heavier fuel loadings in the future. This area is drier and is subject to more lightning fires. It has private land holdings within the fire management zone.

Suppression actions are a coordinated effort between BLM, District and Forest personnel. Fires have been small with the largest fire in recent years being 150 acres. At times, other Forests are called for suppression support.

Moisture is generally received in adequate amounts from wet thundershowers to affect fire intensities. This division has more lightning caused fires than the other divisions.

Evaluation - Each District provided historical program costs, manpower and resource availability, manning response to different intensity levels, travel times and non-fire manpower program response. This information, along with fire frequency, intensity levels, and rate of spreads were used for the level II analysis.

Fires can be effectively managed in most cases in both Fire Management Zones using confinement, containment, or control. The Fire Management Analysis Level I revealed that large fires could occur in both zones.

Six optional fire management strategies were evaluated during the Fire Management Analysis Level II. Table A-20 displays the total fire fighting protection resources for the Forest by options.

TABLE A-20*

SUMMARY OF FOREST OPTIONS FOR
INITIAL ACTION STRENGTH OF FORCE
FIRE MANAGEMENT ANALYSIS LEVEL II

Options	Manpower	Equipment
Base (011)	21	4 Engines
-20% (012)	15	4 Engines
-40% (013)	10	4 Engines
-60% (014)	6	4 Engines
+20% (015)	25	6 Engines
+40% (016)	30	8 Engines

* Refer to EIS Chapter II, Table II-5 Summary Comparison of Trade-offs Between Alternatives, and Chapter IV Impact of Implementing Alternatives.

The planning process has revealed statistics that will be of benefit to the fire management program. Two of these are identified below.

1. The fire season often lasts from mid-May until the end of October. The Forest has two fire seasons with summer lightning from mid-May to the first of September and the second fire season occurs in the fall during the hunting season to late October.
2. If the Forest experiences a significant number of multiple fires per day or multiple fire days, that can place stress on the availability of manpower and equipment resources.

Prescribed Fire - Prescribed fire will be used to meet management goals and objectives for the protection, enhancement, and maintenance of resource productivity. In achieving the resource objectives, prescribed fire will be used only when fuels and weather conditions assure that the fire is in prescription for the specific management unit. If those conditions are not met, the burn will not occur.

The long-term strategy and direction for prescribed fire on the Manti-LaSal National Forest is five-fold.

1. Prescribed fire is used as a tool to dispose of forest residues when they cannot be used for firewood or when other viable alternatives are limited.
2. Unplanned ignitions may be declared a prescribed fire. The ignition must meet a predesignated set of criteria established in site-specific prescribed fire plan.
3. Prescribed fires will be used in wildlife habitat to foster browse or other vegetative productivity and create diversity.
4. Prescribed fires will be used in range habitat and other vegetative productivity to improve composition and create diversity.
5. Prescribed fires will be used in ponderosa pine and other conifer stands to reduce and maintain acceptable fuel loadings and to prepare seedbeds.

Fuels Management - Fuels management treatment will be used to protect, maintain, and enhance production to meet management goals and objectives, where economically feasible. If activity fuel treatment cannot be accomplished to meet resource management objectives, the activity will not be undertaken.

Activity Fuels

1. Activity fuels will be treated or provided supplemental protection by the beginning of the first fire season following completion of the activity.
2. The treatment of activity fuel is the responsibility of the benefiting function conducting the activity.
3. Standards will be based upon land and resource management objectives for each management unit. FSH 5109.18 Fuel Management Handbook will be used as a guideline for setting standards.
4. Residue utilization can be used to extend activity treatment dates.
5. Fuel Treatment Applications. The following management actions for fire hazard reduction shall be considered when developing fuels management plans.

- A. Utilization
- B. Rearrangement
- C. Removal
- D. Disposal
- E. Conversion
- F. Nontreatment
- G. Interim Protection
- H. Supplemental Protection

Natural Fuels

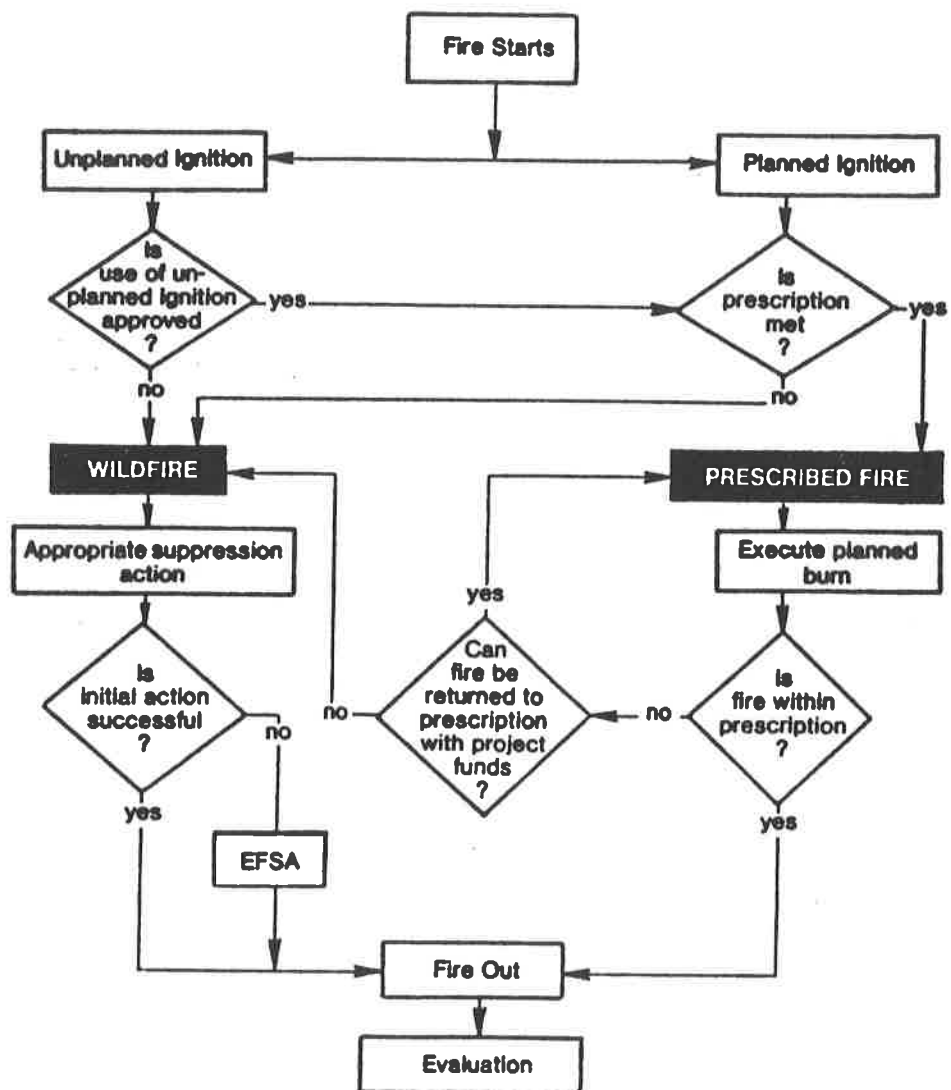
1. The treatment of natural fuels is the responsibility of the benefiting function conducting the activity and must be cost-effective or the activity will not be undertaken.
2. Standards will be based upon land and resource management objectives for each management unit.
3. Fuels Treatment Applications. The following management actions for fire hazard reduction shall be considered when developing fuels management plans.

- A. Utilization
- B. Rearrangement
- C. Removal
- D. Disposal
- E. Conversion
- F. Nontreatment
- G. Interim Protection
- H. Supplemental Protection

Figure A-4 summarizes the application of fire policy to different fire situations.

FIGURE A-4

FIRE MANAGEMENT POLICY MODEL



LANDS ACTIVITY SCHEDULE

The Lands Activity Schedule contains the following land programs:

- Landline Location (Table A-21) lists the landline location program for ROW's and interior and exterior boundaries.
- Rights-of-Way (Table A-22) lists, by road, the ROW cases and miles of road ROW's needed.
- Withdrawal Sites Review (Table A-23) lists the existing withdrawals that are to be reviewed to determine if the withdrawal should be continued.
- Proposed Mineral Withdrawal Sites Review (Table A-24) lists the proposed sites to consider for withdrawal.

TABLE A-21

LANDLINE LOCATION

Year	ROW's	Interior	Exterior
1	2.1	1.3	11.8
2	5.5	4.0	6.4
3	1.8	1.3	13.6
4	2.0	1.5	14.8
5	1.8	4.5	11.9
6	1.2	3.0	14.6
7	4.2	1.0	14.5
8	3.0	4.8	13.5
9	3.5	1.3	18.5
10	1.7	4.8	14.4

TABLE A-22

RIGHTS-OF-WAY

Year	Road Name	FDR#	Cases	Miles
1986	Pack Creek - LaSal Pass	50073	3	1.6
	Upper Two Mile (Sinbad Ridge Access)	50203	1	0.5
1987	Dairy Fork	50006	1	0.3
	Potter Canyon	50271	1	2.2
	East Mountain	50060	3	3.0
1988	South Fork - Soldier	50009	1	0.4
	Miller's Flat	50014	3	1.4
1989	Miller's Flat	50014	1	0.6
	Skyline Drive	50150	1	0.2
	Cottonwood	50040	2	1.2
1990	Sinbad	New Access	1	0.5
	Lake Fork - Indianola	50070	2	1.5
	Polar Mesa	50030	1	0.3
1991	Gateway	50207	4	1.2
1992	Gooseberry Reservoir	50124	1	0.2
	Upper Huntington*	50225	2	4.0
1993	Dry Creek	50217	2	0.7
	Electric Lake	50222	1	1.8
	Granger Ridge	50221	1	0.5
1994	Pine Ridge	50140	1	1.3
	Trail Mountain	50034	1	1.2
	Flat Canyon	50145	1	1.0
1995	Lowry Water	50038	1	0.3
	Muddy Creek	50047	2	0.8
	Dairy Fork	50006	1	0.6
Totals			39	26.8

* Probably should be special use.

WITHDRAWAL REVIEW

Withdrawals from mineral entry on the Forest were made over the years to protect capital investments and planned developments. The majority of the withdrawals were under Executive Order (EO) 10355, which was later repealed by the Federal Land Policy and Management Act of 1976 (FLPMA). Section 204(1) of FLPMA requires that all withdrawals in 11 western states be reviewed by 1991 to determine whether and for how long the continuation of each withdrawal would be consistent with the original purpose for which the land was segregated from mineral entry. The purpose of the review required by FLPMA is to reduce the amount of land withdrawn from entry where surface mining regulations (36 CFR 228) or other laws can provide adequate protection. The review will be done according to criteria and procedures established in the Secretary of Interiors regulations 43 CFR 2300 and by Bureau of Land Management (BLM) Organic Act directives. If the review is not completed by 1991, withdrawals will be automatically revoked.

Three different categories of withdrawals will be considered in the review process. These are: (a) Forest Service withdrawals on National Forest System land; (b) Forest Service withdrawals on BLM land; and (c) Other Federal agency withdrawals on National Forest System land.

The review process will include a determination of whether continuation, revocation, or partial revocation of each withdrawal is appropriate. The basic steps in the review process are: 1. Field examination of withdrawal sites. 2. Preparation of required mineral and lands reports. 3. Preparation of an Environmental Assessment. The Environmental Assessments can cover more than one site if the same action is recommended for a number of sites. 4. Preparation of new legal descriptions for lands on which withdrawals are to be partially revoked with a minimum amount of land to be withdrawn. 5. Preparation of a justification statement for withdrawals which are to be continued. 6. A review of other Federal agency withdrawal recommendations on National Forest System lands with concurrence or disapproval. 7. Submission of completed documents and recommendations to the BLM per their procedures.

New withdrawal area requests will be processed according to BLM regulations. For example, if the proposed Research Natural Areas are formally accepted for management, new withdrawals will be requested.

Comprehensive reviews of withdrawals for the Manti-LaSal National Forest will begin in fiscal year 1986 and will be completed by fiscal year 1989. The review schedule is shown in Table A-23 on the following page. This schedule has been agreed upon by the BLM and will give them adequate review time to meet the 1991 deadline.

TABLE A-23

WITHDRAWAL SITES REVIEW

Fiscal Year and Name	Location	District	Acres	Serial No.
1986*				
Joes Valley Water and Power Site (Bureau of Reclamation)	S32, T17S, R6E, and S5, T18S, R6E	Ferron	200	U-035987
Joes Valley Water and Power Site (Bureau of Reclamation)	S30, T17S, R6E, and S4, T18S, R6E	Ferron	180	U-087869
Chicken Creek Recreation Area (Uinta National Forest)	S2 and 11, T15S, R1E	Sanpete	30	U-6443
Joes Valley Administrative Site	S31, T17S, R6E	Ferron	112	U-16603
Indian Creek Administrative Site	S22, T19S, R4E	Ferron	40	U-42843
Upper Joes Valley Administrative Site	S15, T16S, R6E	Ferron	80	U-42843
Sealey Creek Administrative Site	S25 and 26, T17S, R4E	Ferron	180	U-42851
Moroni Administrative Site (Uinta National Forest)	S21, T14S, R2E	Sanpete	40	U-42841
Mesa Administrative Site	S30, T26S, R24E	Moab	58	U-026841
Hammond Canyon Archeological Area	S28, 29, 30, 31, 32 and 33, T35S, R20E	Monticello	800.19	U-028260
Baker Administrative Site	S26 and 35, T33S, R23E	Monticello	75	U-42860
Mammoth Administrative Site	S13, T13S, R5E and S18, T13S, R6E	Price	76.16	U-42867
Great Basin Experimental Range	T17S, R4 and 5E, T18S R3 and 4E	Sanpete Ferron	33,839.68	U-09556
Price Dist./S.O. Administrative Site	S9 and 10, T14S, R10E	Price	6.25	U-42941
Maple Canyon Recreation Area (Uinta National Forest)	S34, T14S, R2E	Sanpete	20	U-7566
1987				
Joes Valley Water and Power Site (Bureau of Reclamation)	T18S, R6E	Ferron	1,556	U-42940
Warner Lake Summer Home Area	S28, T26S, R24E	Moab	40	U-049508-A

* Several sites listed here were originally scheduled for 1985. Funding was not received that year so they were carried over to 1986.

TABLE A-23 (Continued)

WITHDRAWAL SITES REVIEW

Fiscal Year and Name	Location	District	Acres	Serial No.
1987 (Continued)				
Oowah Recreation Area	S33, T26S, R24E	Moab	60	U-049508-A
Hammond Canyon Archeological Area	S30, T35S, R19E, and S20, 21, 27, 28, 29, 30 and 33, T35S, R20E	Monticello	2,839.33	U-081486
Spring Ridge Administrative Site	S22 and 27, T11S, R5E	Price	80	U-092145-A
Warner Administrative Site	S21 and 28, T26S, R24E	Moab	62.05	U-42842
Baker Administrative Site	S35, T33S, R23E	Monticello	80	U-42844
1988				
Mt. Baldy Administrative Site	S19 and 20, T19S, R4E	Sanpete	160	U-010062-A
Indian Creek Administrative Site	S9, T34S, R22E	Monticello	160	U-010062-A
Pinchot Administrative Site	S32, T19E, R3E	Sanpete	240	U-010062-A
Steven's Creek Administrative Site	S36, T19 1/2S, R5E	Ferron	100	U-010062-A
Lake Administrative Site	S28, T14S, R6E	Price	90	U-010062-A
Stuart Administrative Site	S8 and 9, T15S, R7E	Price	190	U-010062-A
Gooseberry Administrative Site	S18, T34S, R20E	Monticello	160	U-010062-A
Park Administrative Site	S5, T18S, R6E	Ferron	120	U-010062-A
Pack Creek Administrative Site	S24, T27S, R23E	Moab	40	U-010062-A
Manti Community Recreation Area	S13 and 14, T18S, R3E	Sanpete	80	U-012576
Lake Hill Recreation Area	S20, T17S, R4E	Sanpete	60	U-012576
Ferron Reservoir Recreation Area	S22, T19S, R4E	Ferron	160	U-012576
White Mountain Administrative Site	S34, T20S, R4E	Ferron	80	U-012576
Flat Canyon Recreation Area	S33, T13S, R6E	Price	80	U-012576
Huntington Recreation Area	S5, 8, 17 and 20, T15S, R7E	Price	60	U-012576
Kigalia Administrative Site	S9, T36S, R19E	Monticello	160	U-012576
Warner Administrative Site	S28, T26S, R24E	Moab	60	U-012576
Castle Rock Recreation Area	S17, T15S, R7E	Price	50	U-012576
Forks Recreation Area	S20, T15S, R7E	Price	40	U-012576
Buckeye Administrative Site (Colorado)	S3, T48N, R20W	Moab	99.35	C-06785
Dalton Springs Recreation Area	S32, T33S, R23E	Monticello	80	U-021426
Gooseberry Water and Power Site (Bureau of Reclamation)	S13, 14, 23 and 24 T13S, R5E	Price	6,524	U-42915

TABLE A-24

PROPOSED MINERAL WITHDRAWAL SITES REVIEW

Year	Name	Location	Acres
1986	Buckeye Administrative Site and Recreation Area	T48N, R20W, Sec. 2, Lots 13, 14, 15, and N 1/2, SE 1/4, SW 1/4, SE 1/4, W 1/2, SE 1/4, SE 1/4, N 1/2 N 1/2 NW 1/4 SW 1/4, E 1/2 E 1/2 SE 1/4 SW 1/4, E 1/2, NE 1/4 SW 1/4, NW 1/4 NE 1/4 SW 1/4	310
1986	LaSal Administrative Site	T28S, R25E, Sec. 22, W 1/2 SW 1/4 SW 1/4 SE 1/4, E 1/2 SE 1/4 SE 1/4 SW 1/4	10
1986	Warner Administrative Site and Campground	T26S, R24E, Sec. 21, S 1/2 SW 1/4, SE 1/4 E 1/2 SE 1/4 SE 1/4 SW 1/4	25
1988	Spring City Picnic Area	E 1/4 NE 1/4 SE 1/4 NE 1/4, Sec. 12, R4E, T16S	2
1988	Elk Knolls (RNA)	SW 1/4, NW 1/4, NW 1/4, SW 1/4, Sec. 10, T18S, R4E, SE 1/4, NE 1/4, NE 1/4, SE 1/4, Sec. 9, T18S, R4E	40
1988	Grove of Giant Aspen (SA)	E 1/2, NE 1/4, SW 1/4, NE 1/4, W 1/2, NW 1/4, SE 1/4, NE 1/4, Sec. 24, T19S, R3E	10
1988	Old Polks Flat Campground	Sec. 8, T15S, R7E, Sec. 5, T15S, R7E	5
1988	Stuart Guard Station	Sec. 8, T15S, R7E	5
1988	Blue Mountain Ski Area With Proposed Expansion	Portions of Sec. 31, T33S, R23E, SLM and Portions of Sec. 1, T34S, R23E, SLM	325
1988	Devils Canyon Campground	Portions of Sec. 9, 16, and 17, T35S, R23E, SLM	250
1988	Buckboard Campground	Portions of Sec. 25, T33S, R22E, SLM	90
1988	Monticello Lake	Portions of Sec. 23, T33S, R22E, SLM	120
1988	Spring Lake	Portions of Sec. 16 and 21, T33S, R22E, SLM	90
1988	Racetrack Reservoir	Portions of Sec. 22, T33S, R22E, SLM	40
1988	Red Bluff Campground	Portions of Sec. 28, T34S, R22E, SLM	40
1989	Indian Creek Campground	Sec. 10, T16S, R6E	57.50
1989	Joes Valley Rec. Complex	Sec. 30, 31, 32, T17S, R6E, Sec. 6, T18S, R6E	322.68
1989	Gooseberry Campground	Sec. 18, T13S, R6E	17.5
1989	Forks Campground	Sec. 20, T15S, R6E	17.5
1990	Beaver Dam Summer Home	Sec. 31, T13S, R6E	37.5
1990	Fish Creek Campground	Sec. 13, T12S, R6E	10

TRANSPORTATION ACTIVITY SCHEDULE

In the first 10-year period, eleven percent of the system will have been upgraded to the management objective level leaving 63 percent needing future upgrading to be at the management objective level.

1. 9.6 miles of primitive major-collector road will be upgraded to all weather gravel road.
2. 88.3 miles of primitive minor-collector road will be upgraded to all weather gravel road.
3. 88.3 miles of primitive minor-collector road will be upgraded to dry weather gravel road.
4. 51.9 miles of graded and drained major-collector road will be upgraded to all weather gravel.
5. 43.5 miles of new graded and drained road will be added to the system.

During the first several years, intensive management through use restriction and a shift from marginal local, collector and arterial road system maintenance to intensive collector and arterial road system maintenance should occur in order to provide resource and roadbed protection. Instead of 99 percent of the local system being maintained at level 2 or higher, only five percent would be maintained at level 2 or higher at the beginning of the period. Restriction would be placed on 45 percent of the local road system in the beginning. Gradually, 58 percent of the local road system would be maintained at level 2 for travel by high clearance vehicles at end of the period and only 42 percent of local system or 23 percent of total system restricted.

Intensive and improved maintenance of the arterial and collector system would allow passenger car traffic use to increase from 20 percent to 46 percent of the system mileage by the end of the period. High clearance vehicle traffic use would increase from 46 percent of the system mileage to 68 percent of the system mileage over the 10 year period.

Maintenance would move from minimum operating maintenance to adequate existing investment protection with dispersed recreation and developed access maintenance. Maintenance would still be below management objectives.

The Transportation Activity Schedule contains the following program:

- Ten-year Road Maintenance Plan Activity Schedule (Table A-25).
- Transportation Plan Review Schedule that lists system roads to be considered for (a) obliteration and complete closure (Table A-26), (b) obliteration and use restrictions (Table A-27), and (c) use restrictions (Table A-28).
- Non-system Roads Recommended for Obliteration (Table A-29).
- Roads Proposed for Forest Development Road System (Table A-30) lists roads to be considered for inclusion in the system.
- Road Construction (Table A-31) lists the roads scheduled for construction or reconstruction.

TABLE A-25

TEN-YEAR ROAD MAINTENANCE PLAN ACTIVITY SCHEDULE
Miles of Road Maintained by Maintenance Levels

Year	Maintenance Levels					Cost M\$
	1	2	3	4	5	
1986	652.1	338.3	129.3	17.8	16.3	457
1987	657.0	338.3	129.3	52.5 75.9	16.3	479
1988	661.8	338.3	129.3	85.7 42.7	16.3	500
1989	666.6	338.3	129.3	120.5 7.9	16.3	522
1990	646.7	338.3	154.1	128.4	16.3	544
1991	619.2	338.3	186.4	128.4	16.3	566
1992	593.4	338.3	217.1	128.4	16.3	587
1993	515.7	410.6	227.3	128.4	16.3	609
1994	414.4	516.7	227.3	128.4	16.3	631
1995	313.2	622.7	227.3	128.4	16.3	653
2000	306.0	323.9	454.1	223.1	0	903

TRANSPORTATION PLAN REVIEW SCHEDULE

The following tables list roads scheduled for review to determine whether they should be closed and/or obliterated or have use restrictions. Part of the roads listed are on the Forest Development Road system and part are not on the system. In addition, Table A-26 lists non-system roads that will be evaluated for inclusion on the Forest Development Road system.

TABLE A-26

FOREST DEVELOPMENT ROADS RECOMMENDED OBLITERATION/COMPLETE CLOSURE

Sanpete Ranger District

- 50114 - White Ledge Road (Considered for Motorized Trail)
- 50217 - Dry Creek (Shift to Trail System)

Ferron Ranger District

- 50153 - Ferron Mountain

Price Ranger District

- 50008 - Bear Ridge (Part to be Replaced)
- 50012 - Intex Mine
- 50119 - South Hughes
- 50124 - Gooseberry Reservoir (Part Only)
- 50138 - Terry Ridge
- 50211 - Mill Creek
- 50213 - Gooseberry Summer Homes
- 50214 - Dry Canyon
- 50225 - Upper Huntington (Part Only)

Moab Ranger District - None

Monticello Ranger District

- 50174 - Hart's Draw (Part Only)

TABLE A-27

FOREST DEVELOPMENT ROADS
CONSIDERED/EVALUATED FOR OBLITERATION/USE RESTRICTIONS

Sanpete Ranger District

50127 - Moroni Ridge (Part Only)
50134 - Deep Ridge
50148 - Death Hollow
50154 - Rocky Ridge
50158 - Cooley Creek
50165 - Trough Springs
50272 - Dry Pole
50279 - Haystack

Ferron Ranger District

50135 - Grave Pit

Price Ranger District

50122 - Fish Creek Ridge (Part Only)
50215 - Garrett Ridge

Moab Ranger District - None

Monticello Ranger District - None

TABLE A-28

FOREST DEVELOPMENT ROADS
CONSIDERED/EVALUATED FOR USE RESTRICTIONS

Sanpete Ranger District

50120 - Little Salt Creek
50270 - Knob Mountain
50339 - Canal Canyon

Ferron Ranger District

50028 - The Pines
50042 - Muddy Creek
50143 - Roans Canyon
50156 - The Cove
50311 - Big Bear
50316 - Dry Mountain
50317 - East Rim
50347 - Mud Spring

Price Ranger District

50219 - Mill Creek Ridge
50233 - Green Canyon
50235 - Cabin Hollow
50247 - Mud Creek
50250 - Wildcattle
50252 - McCadden Flat

Moab Ranger District

50063 - Warner
50076 - Cowah

Monticello Ranger District

50094 - East Gooseberry
50096 - Maverick Point
50097 - Mormon Pasture
50098 - Davis Pocket
50102 - Chippean Ridge
50103 - Vega Point
50176 - Starvation Point
50177 - Mormon Pasture Mountain
50200 - East Point
50354 - Jackson Ridge

TABLE A-29

NON-SYSTEM ROADS RECOMMENDED FOR OBLITERATION

Sanpete Ranger District - None

Ferron Ranger District

Black Canyon - From old oil well site down canyon.

Fly Canyon - From mouth of canyon to basin.

Buck Flat - From Buck Flat to Ferron-Mayfield Road near Shoemaker Flat.

Grassy Lake - From Grassy Lake south to Little's Creek Road.

Price Ranger District

Right Fork Spring Canyon

Head of Boulger Canyon

Rolfson Dam to Jorgensen

Miller Flat Creek

Seeley - Jordan Canyon

Potter's Scad Valley

Lake Creek Right Fork

Lake Creek South

Beaver Dams Recreation Homes South

Beaver Dams North

Gentry Ridge

Wildcattle Ridge

Bear Ridge - Water Hollow

Gooseberry Valley

Moab Ranger District

Roc Creek Terrace

Unknown Canyon

North Beaver Mesa - Hideout Canyon

Willow Basin - Bear Creek

Gold Basin - Horse Creek

Monticello Ranger District - None

TABLE A-30

ROADS PROPOSED FOR FOREST DEVELOPMENT ROAD SYSTEM

Sanpete Ranger District - None

Ferron Ranger District - None

Price Ranger District

Bear Ridge (New Alignment)
Burnout
Spring Ridge Administrative Site

Moab Ranger District

North Beaver Mesa
Sinbad Ridge Road
Willow Basin Road
Mesa Guard Station Road
Pinhook Battleground Road
Cold Spring Road
Pack Creek Road
Gold Basin Road
Paradox-Buckeye Road (Lion Creek to FS Boundary)

Monticello Ranger District

Peter's Point
Bull Dog
Johnson Creek

TABLE A-31

ROAD CONSTRUCTION

Year	FDR No.	Miles	Primitive	Native	Ready for 4" Aggregate	Ready for 12" Aggregate	Graded With 4" Aggregate	Graded With 12" Aggregate	Cost M\$
1986	50150	9.7							204
	50069	13.2							205
Total									409
1987	50073	16.1							250
	50008	8.0							124
	50122	3.6							56
Total									430
1988	50036	3.0							46
	50129	4.1							64
	50006	5.5							85
	50039	5.0							78
	50271	5.9							91
	50110	1.9							29
	50060	5.4							84
Total									477
1989	50011	5.3							82
	50047	4.0							62
	50009	2.8							43
	50114	4.5							70
	50014	3.7							231
Total									488
1990	50014	8.2							512
1991	50014	4.9							306
	50092	3.8							238
Total									544
1992	50092	4.7							294
	50150	5.6							272
Total									566
1993	50150	4.1							199
	50150	1.5							94
	50150	4.8							300
Total									593
1994	50150	9.9							619
1995	50150	10.3							644

SIGN PROGRAM ACTIVITY SCHEDULE

The sign activity schedule shows that the Forest will need between \$16,230 and \$19,476 per year to complete the first phase of the Forest Sign Plan. No priority 1 or 5 sign requirements were identified. Within the priority groupings, the installation will be safety signs first, regulatory signs second, information signs third, and route signs fourth. The present identified needs are 1.1 percent priority 2, 59 percent priority 3, and 30 percent priority 4. Some sixty man-days per year for planning, purchasing, installing and maintaining, the signs have to be identified. Installation and maintenance accounts for 75 percent of the manpower requirements.

TABLE A-32

SIGN PROGRAM

Year		Warning	Regulatory	Guide	Total \$
1986	Install/Replace Repair	595 —	120 —	6,535 —	7,250 —
1987	Install/Replace Repair	— —	— —	16,230 —	16,230 —
1988	Install/Replace Repair	3,140 —	3,810 —	9,280 —	16,230 —
1989	Install/Replace Repair	— —	— —	16,230 —	16,230 —
1990	Install/Replace Repair	— —	— —	16,230 —	16,230 —
1991	Install/Replace Repair	— 120	— 25	16,230 1,305	16,230 1,450
1992	Install/Replace Repair	— —	— —	16,230 3,246	16,230 3,246
1993	Install/Replace Repair	— 630	— 760	16,230 1,856	16,230 3,246
1994	Install/Replace Repair	— —	— —	16,230 3,246	16,230 3,246
1995	Install Replace Repair	— —	— —	16,230 3,246	16,230 3,246

FACILITIES ACTIVITY SCHEDULE

The purpose of Facilities Activity Schedule (based on the Forest Facilities Master Plan) is to identify action needed to ensure that Forest facilities are adequate for Forest management needs. The plan is based on current and expected future work loads.

The Forest Facilities Master Plan is divided into a Forest-wide summary of planned actions, a District by District narrative, and maps showing administrative site locations. The Forest-wide summary of planned actions is included here.

There are 62 PA&O buildings on the Forest that the Facilities Master Plan, which is a part of the Forest Plan, has scheduled for retention. Generally, these buildings average 50 or more years of age but are structurally sound. Accomplishment of annual condition surveys, periodic structural inspections, and planning and executing routine repairs and minor improvements related to safety and health, costs \$60.00 per year. This averages \$1,000 per building per year and provides for the following typical repairs or maintenance.

- A. Replacement or oiling of wooden rooftops to prevent leaks.
- B. Repair, replacement, and caulking of windows, screen doors, doors, and front porches.
- C. Painting of interior and exterior.
- D. Patching of dry wells and sagging porches.
- E. Control of insects and rodents.
- F. Upgrading or maintaining water, sewer, and utilities where they exist to comply with health and safety requirements by law.
- G. Correcting foundation problems before they endanger the structural integrity of the building.

The Facilities Activity Schedule contains the following facility programs:

- Building and Structure Program (Table A-33) lists scheduled facility improvements.
- Summary of Planned Actions lists the facilities on the Forest and indicates the proposed action for maintenance, construction, or obliteration.

TABLE A-33

BUILDING AND STRUCTURE PROGRAM

Year	Site	Need
1986	None	
1987	Ferron Complex Indian Creek Guard Station Castle Dale Dwelling Warner Guard Station	Rewire Electrical Rewire Sewer
1988	Moab Office Baker Guard Station Bunkhouse Baker Guard Station Warehouse	Space Housing Space
1989	Kigalia Guard Station	Water/Sewer
1990	Stuart Guard Station	Water/Sewer
1991	Ephraim Office	Safe Space
1992	Ephraim Office	Safe Space
1993	Buckeye Guard Station Stuart Guard Station	Water/Sewer Housing
1994	Price District Office Ephraim Warehouse	Space Space

SUMMARY OF PLANNED ACTIONS

<u>Site/Facility and Building Number</u>	<u>Action</u>
Price Supervisor's Office (Leased Building) <u>1/</u>	Replace
Price Administrative Site #1000001 <u>1/</u>	Relocate/New
Warehouse (Radio Shop) #1303	Relocate/New
Oil and Gas House #1337	Relocate/New
Equipment Shed #1304	Relocate/New
Storage Warehouse (Price District) #1336	Relocate/New
Property Building (Fire) #1334	Relocate/New
Pesticide and Seed Storage Building #1329	Relocate/New
Staff Storage Building #1341	Relocate/New
Price WCF Shop (Leased Building) <u>1/</u>	Replace
Price District Office (Leased Building) <u>1/</u>	Replace
Ephraim Office (Leased Building)	Replace
Ephraim Administrative Site #1001002	Relocate/New
Shop/Warehouse #1309	Relocate/New
Paint, Pesticide, and Flammable Storage Building #1333	Relocate/New
Ephraim Dwelling #1001003	Retain
Manti Administrative Site #1001004	Retain
Dwelling #1131	Retain
Garage and Shop #1306	Retain
Moroni Guard Station #1001006	Relocate/New
Water and Sewer System #10602, #10603	Relocate/New
Electrical System #10606	New Construction
Two Trailer Pads with Utilities #10604, #10605	New Construction
Dwelling #10601	Relocate/New
Mount Baldy Administrative Site #1001005	
Bunkhouse #1123	Remove
Water and Sewer System #10501, #10502	Upgrade
Electrical System #10503	New Construction
Two Trailer Pads with Utilities #10504, #10505	New Construction
Pinchot Guard Station	Obliterate
Upper Joes Valley Guard Station	Obliterate
Dwelling	Obliterate
Garage	Obliterate
Orange Olsen Administrative Site #1002001	
Dwelling #1113	Retain
Bunkhouse #1132	Upgrade/Plumbing
House Trailer	Obliterate
Generator House #20201	Replace
Storage Building #1307	Replace
Eight Trailer Pads with Utilities #20202, #20203, #20204, #20205, #20206, #20207, #20208, and #20209	New Construction
Roads	Upgrade/Pavement
Electrical System #20210	Upgrade
Water System #7349	Upgrade
Sewer System #002-9	Upgrade

1/ All facilities in Price are substandard or leased buildings. The Forest Service should obtain a new site and build all facilities needed in Price at the new site.

SUMMARY OF PLANNED ACTIONS (Continued)

<u>Site/Facility and Building Number</u>	<u>Action</u>
Seeley Creek Guard Station	Obliterate
Indian Creek Guard Station #1002002	
Dwelling #1118	Retain
Bunkhouse/Storage #1314	Renovate
Four Trailer Pads with Utilities #20201, #20202, #20203, and #20204	New Construction
Electrical System #20205	New Construction
Water System #7329	Upgrade
Sewer System #002-7	Upgrade
White Mountain Cabin	Obliterate
Pit Toilet	Obliterate
Fence	Obliterate
Green Hollow - Cowboy Creek #1002003	New Construction
Three Trailer Pads with Utilities #20301, #20302, and #20303	New Construction
Water System #20305	New Construction
Sewer System #20304	New Construction
Electrical System #20306	New Construction
Castle Dale Administrative Site #1002004	Retain
Dwelling #1107	Upgrade/Elect
Garage #1311	Retain
Ferron Administrative Site #1002005	
Dwelling #1112	Upgrade/Elect
Bunkhouse #1117	Upgrade/Elect
Warehouse #1342	Upgrade/Elect
Barn #1308	Upgrade/Elect
Paint, Pesticide, and Flammable Storage #20502	New Construction
Garage #1312	Upgrade/Elect
Ferron Office (Leased Building)	Replace
Stuart Guard Station #1003001	
Dwelling #1127	Retain
Garage #1322	Retain
Warehouse #1343	Retain
Four Trailer Pads with Utilities	New Construction
Sewer System	Replace
Water System	Replace
Lake Guard Station #1003002	
Dwelling #1120	Upgrade/Plumbing
Garage #1316	Retain
Six Trailer Pads with Utilities	New Construction
Water System	Retain
Sewer System	Retain
Parking Area	New Construction
Warehouse #30321	New Construction
Generator Shed #30322	Retain
Spring Ridge Administrative Site #1003004	
Water System	New Construction
Sewer System	New Construction
Corral and Pasture	New Construction
Roads and Parking	Reconstruction
Trailer Pad	New Construction

SUMMARY OF PLANNED ACTIONS (Continued)

<u>Site/Facility and Building Number</u>	<u>Action</u>
Buckeye Guard Station #1004001	
House Trailer #40104	Retain
Storage Shed #40105	Retain
Trailer Pad with Utilities	New Construction
Water System	Upgrade
Sewer System	Upgrade
Electrical System	New Construction
Parking Area	New Construction
Warner Guard Station #1004002	
Dwelling #1129	Renovate
Garage #40203	Retain
Water System	Retain
Sewer System	Replace
Trailer Pad with Utilities	New Construction
LaSal Guard Station #1004003	
Dwelling #1103	Retain
Storage Shed #40301	New Construction
Water System	Replace
Sewer System	Retain
Electrical System	Update
Mesa Guard Station #1004004	Retain
Moab Office (Leased Building)	Replace
Moab Administrative Site #1004005	Retain
Warehouse #1302	Retain
Bunkhouse #1109	Retain
Garage and Shop #1301	Retain
Paint, Pesticide, and Flammable Shed #40502	Retain
Storage Shed #1338	Retain
Dwelling #1122	Retain
Monticello Office (Leased Building) #1005001	Replace
Monticello Dwelling (216 Uranium) #1005002	Retain
Garage	Retain
Monticello Dwelling (Lower Uranium) #1005003	Dispose
Baker Administrative Site #1005004	
Dwelling #1102	Retain
Garage #1310	Retain
Bunkhouse #1104	Replace
Warehouse #1325	Retain
Barn #1326	Retain
Oil Shed #50403	Retain
Recreation Shed #50404	Retain
Sewer System	Retain
Equipment Shed/Warehouse #50401	New Construction
Paint, Pesticide, and Flammable Storage Building #50402	New Construction
Gooseberry Guard Station #1005005	
Dwelling - 3 Person #1116	Renovate/Siding
Dwelling - 2 Person #50502	Renovate/Siding
Gas and Oil Shed #1313	Replace
Trailer Pad with Utilities	New Construction
Water System	Retain
Sewer System	Retain

SUMMARY OF PLANNED ACTIONS (Continued)

<u>Site/Facility and Building Number</u>	<u>Action</u>
Kigalia Guard Station #1005006	
Dwelling #1119	Renovate/Siding
Warehouse #50602	Replace
Sewer System	Replace
Water System	Replace
Trailer Pad with Utilities	New Construction
Levan Peak Communication Site #1000002	New Construction
Horseshoe Flat Communication Site #1000003	Addition
Abajo Peak Communication Site #1000004	Retain
Cedar Mountain Communication Site #1000005	Retain
Monument Peak Communication Site #1000006	Retain
Bald Mesa Communication Site #1000007	Retain
Sarpete Point Communication Site #1000008	Retain
Castle Valley Landfill Warehouse #1000009	Retain

APPENDIX B

MINERAL STIPULATIONS AND MITIGATION STATEMENTS

Page

Coal

1. Special Coal Lease Stipulations B-2
(To be included in leases as appropriate.)
2. Standard Stipulations for Coal Drilling Operations B-5
(To be included in leases as appropriate.)

Oil and Gas

1. Stipulation for Lands Under Jurisdiction of Department of Agriculture B-8
(Required in leases for National Forest System lands.)
2. Forest Service (R-4) Supplement A B-9
(Required in leases for National Forest System lands.)
3. Special Stipulations B-11
(Table included in leases as appropriate.)
4. Prospecting Permit B-15
(Required in permits.)
5. Regional Stipulations B-17
(Required in permits for prospecting for O&G.)
6. Manti-LaSal National Forest Stipulations B-18
(Included in permits for prospecting for O&G.)

Locatable Minerals

1. Locatable Mineral Mitigation Statements B-21
(Required in Action Plan approval documents.)
2. Required and Special Mitigation Statements for Uranium Drilling B-21

SPECIAL COAL LEASE STIPULATIONS

Federal Regulations 43 CFR 3400 pertaining to Coal Management make provisions for the Surface Management Agency, the surface of which is under the jurisdiction of any Federal agency other than the Department of Interior, to consent to leasing and to prescribe conditions to ensure the use and protection of the lands. All or part of this lease contain lands the surface of which are managed by the United States Department of Agriculture, Forest Service - Manti-LaSal National Forest.

The following stipulations pertain to the Lessee responsibility for mining operations on the lease area and on adjacent areas as may be specifically designated on National Forest System lands.

Forest Service Stipulation #1

Before undertaking activities that may disturb the surface of previously undisturbed leased lands, the Lessee may be required to conduct a cultural resource inventory and a paleontological appraisal of the areas to be disturbed. These studies shall be conducted by qualified professional cultural resource specialists or qualified paleontologists, as appropriate, and a report prepared itemizing the findings. A plan will then be submitted making recommendations for the protection of, or measures to be taken to mitigate impacts for identified cultural or paleontological resources.

If cultural resources or paleontological remains (fossils) of significant scientific interest are discovered during operations under this lease, the Lessee prior to disturbance shall immediately bring them to the attention of the appropriate authority. Paleontological remains of significant interest do not include leaves, ferns, or dinosaur tracks commonly encountered during underground mining operations.

The cost of conducting the inventory, preparing reports, and carrying out mitigating measures shall be borne by the Lessee.

Forest Service Stipulation #2

If there is reason to believe that threatened or endangered (T&E) species of plants or animals, or migratory species of high Federal interest occur in the area, the Lessee shall be required to conduct an intensive field inventory of the area to be disturbed and/or impacted. The inventory shall be conducted by a qualified specialist and a report of findings will be prepared. A plan will be prepared making recommendations for the protection of these species or action necessary to mitigate the disturbance.

The cost of conducting the inventory, preparing reports, and carrying out mitigating measures shall be borne by the Lessee.

Forest Service Stipulation #3

The Lessee shall be required to perform a study to secure adequate baseline data to quantify the existing surface resources on and adjacent to the lease area. Existing data may be used if such data is adequate for the intended purposes. The study shall be adequate to locate, quantify, and demonstrate the inter-relationship of the geology, topography, surface hydrology, vegetation, and wildlife. Baseline data will be established so that future programs of observation can be incorporated at regular intervals for comparison.

Forest Service Stipulation #4

Powerlines used in conjunction with the mining of coal from this lease shall be constructed so as to provide adequate protection for raptors and other large birds. When feasible, powerlines will be located at least 100 yards from public roads.

Forest Service Stipulation #5

The limited area available for mine facilities at the coal outcrop, steep topography, adverse winter weather, and physical limitations on the size and design of the access road, are factors which will determine the ultimate size of the surface area utilized for the mine. A site-specific Environmental Analysis will be prepared for each new mine site development and for major improvements to existing developments to examine alternatives and mitigate conflicts.

Forest Service Stipulation #6

Consideration will be given to site selection to reduce adverse visual impacts. Where alternative sites are available, and each alternative is technically feasible, the alternative involving the least damage to the scenery and other resources shall be selected. Permanent structures and facilities will be designed and screening techniques employed to reduce visual impacts, and where possible, achieve a final landscape compatible with the natural surroundings. The creation of unusual, objectionable, or unnatural land forms and vegetative landscape features will be avoided.

Forest Service Stipulation #7

The Lessee shall be required to establish a monitoring system to locate, measure, and quantify the progressive and final effects of underground mining activities on the topographic surface, underground and surface hydrology and vegetation. The monitoring system shall utilize techniques which will provide a continuing record of change over time and an analytical method for location and measurement of a number of points over the lease area. The monitoring shall incorporate and be an extension of the baseline data.

Forest Service Stipulation #8

The Lessee shall provide for the suppression and control of fugitive dust on haul roads and at coal handling and storage facilities. On Forest Development Roads (FDR), Lessees may perform their share of road maintenance by a commensurate share agreement if a significant degree of traffic is generated that is not related to their activities.

Forest Service Stipulation #9

Except at specifically approved locations, underground mining operations shall be conducted in such a manner so as to prevent surface subsidence that would: (1) cause the creation of hazardous conditions such as potential escarpment failure and landslides, (2) cause damage to existing surface structures, and (3) damage or alter the flow of perennial streams. The Lessee shall provide specific measures for the protection of escarpments, and determine corrective measures to assure that hazardous conditions are not created.

Forest Service Stipulation #10

In order to avoid surface disturbance on steep canyon slopes and to preclude the need for surface access, all surface breakouts for ventilation shall be constructed from inside the mine, except at specific approved locations.

Forest Service Stipulation #11

If removal of timber is required for clearing of construction sites, etc., such timber shall be removed in accordance with the regulations of the surface management agency.

Forest Service Stipulation #12

The coal contained within and authorized for mining under this lease shall be extracted only by underground mining methods.

Forest Service Stipulation #13

Existing Forest Service owned or permitted surface improvements will need to be protected, restored, or replaced to provide for the continuance of current land uses.

Forest Service Stipulation #14

In order to protect big-game wintering areas, elk calving and deer fawning areas, sagegrouse strutting areas, and other key wildlife habitat and/or activities, specific surface uses outside the mine development area may be curtailed during specified periods of the year.

Forest Service Stipulation #15

Support facilities, structures, equipment, and similar developments will be removed from the lease area within two years after the final termination of use of such facilities. Disturbed areas and those areas previously occupied by such facilities will be stabilized and rehabilitated, drainages reestablished, and the areas returned to a premining land use.

Forest Service Stipulation #16

The Lessee, at the conclusion of the mining operation, or at other times as surface disturbance related to mining may occur, will replace all damaged, disturbed, or displaced land monuments (section corners, 1/4 corners, etc.), their accessories and appendages (witness trees, bearing trees, etc.), or restore them to their original condition and location, or at other locations that meet the requirements of the land net. This work shall be conducted at the expense of the Lessee, by a professional land surveyor registered in the State of Utah, and to the standards and guidelines found in the Manual of Surveying Instructions, United States Department of the Interior.

Forest Service Stipulation #17

The Lessees, at their expense, will be responsible to replace any surface water identified for protection, that may be lost or adversely affected by mining operations, with water from an alternate source in sufficient quantity and quality to maintain existing riparian habitat, fishery habitat, livestock and wildlife use, or other land uses.

STANDARDIZED STIPULATIONS FOR COAL DRILLING OPERATIONS

Stipulations to be Included in the Coal Drilling Permit

1. A pre-work meeting including the responsible company representative(s), contractors, and the Forest Service must be conducted at the project location prior to commencement of operations. Site-specific Forest Service requirements will be discussed at this time.
2. A Road-Use Permit must be obtained from the Forest Service before equipment is transported onto National Forest System lands.
3. Operations are prohibited from _____ to _____ in the following area(s) (legal description) _____.
4. All surface disturbing activities including reclamation must be supervised by a responsible representative of the permittee/licensee who is aware of the terms and conditions of the project permits and licenses. A copy of the appropriate permits and licenses must be available for review at the project site.
5. The Forest Service must be notified 48 hours in advance that heavy equipment will be moved onto National Forest System lands and that surface disturbing activities will commence.
6. Establishment of campsites and staging areas on National Forest System lands in support of this project is subject to Forest Service approval.
7. The Forest Service must be notified of any proposed alterations to the plan of operations. Any changes to the existing plan are subject to Forest Service review and concurrence.
8. Fire suppression equipment must be available to all personnel working at the project site. Equipment must include at least one hand tool per crew member consisting of shovels and pulaskis and one properly rated fire extinguisher per vehicle and/or internal combustion engine.
9. All gasoline, diesel, and steam-powered equipment must be equipped with effective spark arresters and mufflers. Spark arresters must meet Forest Service specifications discussed in the USDA Forest Service Spark Arrester Guide, June, 1981. In addition, all electrical equipment must be properly insulated to prevent sparks.
10. The permittee/licensee will be held responsible for damage and suppression costs for fires started as a result of operations. Fires must be reported to the Forest Service as soon as possible.
11. The Forest Service reserves the right to suspend operations during periods of high fire potential.
12. Water needed in support of operations must be properly and legally obtained according to State Water Laws. The location of diversion, if on National Forest System lands, is subject to Forest Service review and approval.
13. Unauthorized off-road vehicular travel is prohibited.

14. Section corners or other survey markers, including claim corners, in the project area must be located and flagged for preservation prior to commencement of surface disturbing activities. The removal, displacement, or disturbance of markers must be approved by the proper authority.
15. If cultural or paleontological resources are discovered during operations, all operations which may result in disturbance to the resource must cease and the Forest Service must be notified of the discovery.

Forest Service Stipulations to be Discussed at the Pre-Work Meeting

1. Gates must be kept closed unless otherwise notified.
2. The permittee/licensee will be held responsible for all damages to fences, cattleguards, resource improvements, roads, and other structures on National Forest System lands which result from operations. The Forest Service must be notified of damages as soon as possible.
3. All drilling fluids, muds, and cuttings must be contained on the project site in mud pits or portable containers. The pits must not be used for disposal of garbage, trash, or other refuse.
4. All trees and brush must be cleared as the first step for new access and site construction. Topsoil must be stripped and stockpiled at a location where loss and contamination is minimized.
5. Disturbed areas must be reclaimed by the end of the field season. Exceptions require Forest Service approval.
6. Contaminated soil and gravel must be stripped and placed in the mud pit prior to site reclamation.
7. Mud pits must be allowed to dry before they are backfilled and reclaimed. They must be enclosed by a 4-strand barbed wire fence while they are left to dry.
8. When dry, mud pits must be reclaimed by selectively backfilling excavated materials, topsoil last, such that the disturbed area is replaced to approximate original contour. The disturbed area must be seeded with the specified seed mix when topsoil is replaced.
9. Roads to be obliterated must be reclaimed by ripping the surface, replacing the disturbed area to the approximate original contour, replacing stockpiled topsoil, and seeding with the specified seed mix. Seeding must take place when topsoil is replaced. Water diversion structures, if needed, must be constructed as specified by the Forest Service.
10. All disturbed drainages must be replaced to their approximate original configuration when the project area is reclaimed.
11. All significant water encountered during drilling must be reported to the Forest Service, including the depth and formation at which it was encountered, and an estimate of flow.
12. The operator must clean up and remove all drilling equipment, trash, garbage, flagging, vehicles, and other such materials from National Forest System lands.

13. All trash, garbage, and other refuse must be properly contained on the project site prior to disposal.
14. All drill holes must be plugged in accordance with Federal and State regulations.
15. Operations must be coordinated with grazing permittees to prevent conflicts.
16. Harrassment of wildlife and livestock is prohibited.

Stipulations to be Included in Road-Use Permits

1. Roads must not be used when they are wet and susceptible to damage.
2. The permittee is responsible for repair of damages to roads which are caused by his operations.
3. All traffic must maintain safe speeds commensurate with existing conditions.
4. Roads must be watered if dust becomes a problem or if excessive loss of road material occurs.
5. Heavy equipment may not be transported along FDR _____, during holiday weekends and the opening weekend of the regular big-game hunting seasons.

STIPULATION FOR LANDS OF THE NATIONAL FOREST SYSTEM
UNDER JURISDICTION OF
THE DEPARTMENT OF AGRICULTURE

The licensee/permittee/lessee must comply with all the rules and regulations of the Secretary of Agriculture set forth at Title 36, Chapter II, of the Code of Federal Regulations governing the use and management of the National Forest System (NFS) when not inconsistent with the rights granted by the Secretary of the Interior in the license/prospecting permit/lease. The Secretary of Agriculture's rules and regulations must be complied with for (1) all use and occupancy of the NFS prior to approval of a permit/operation plan by the Secretary of the Interior, (2) uses of all existing improvements, such as Forest Development Roads, within and outside the area licensed, permitted or leased by the Secretary of the Interior, and (3) use and occupancy of the NFS not authorized by a permit/operating plan approved by the Secretary of the Interior.

All matters related to this stipulation are to be addressed

to _____

at _____

Telephone No.: _____

who is the authorized representative of the Secretary of Agriculture.

Signature of Licensee/Permittee/Lessee

SURFACE DISTURBANCE STIPULATIONS

1. Notwithstanding any provision of this lease to the contrary, and drilling, construction or other operation on the lands covered by this lease that will disturb the surface thereof or otherwise affect the environment (hereinafter called "surface disturbing operation") conducted by the lessee shall be subject, as set forth in this stipulation, to the prior approval of such operation by the Bureau of Land Management (BLM) in consultation with the Forest Service, and to such reasonable conditions not inconsistent with the purposes for which this lease is issued, as the authorized officer may require to protect the surface of these lands and the environment.
2. Prior to entry upon National Forest System lands or the disturbance of the surface thereof, for drilling, surveying, and staking of well sites or other facilities, or for any other purposes, the lessee shall contact the appropriate Forest Service officer, as shown in item 12 of BLM Form 3109-3, in regard to surface-use requirements and/or restrictions.
3. An environmental review will be made by the Bureau of Land Management, in consultation with the Forest Service, for the purpose of insuring proper protection of the surface, the natural resources, the environment, and existing improvements, and for assuring timely reclamation of disturbed lands.

Upon completion of said environmental review and any necessary NEPA documents, the authorized officer of the Bureau of Land Management shall notify the lessee of the conditions, if any, to which the proposed surface-disturbing operations will be subject.

Said conditions may relate to any of the following:

- a. The location of drilling or other exploratory or developmental operations or the manner in which they are to be conducted.
 - b. The types of vehicles that may be used and the areas in which they may be used.
 - c. The manner or location in which improvements such as roads, buildings, pipelines, or other improvements are to be constructed.
4. The lessee agrees that during periods of adverse conditions due to climatic factors such as thawing, heavy rains, or flooding, all activities creating irreparable or extensive damage, as determined by the Forest Service, will be suspended or the plan of operation modified and agreed upon.
 5. Protection of Cultural and Paleontological Resources
 - a. The Forest Service is responsible for assuring that the area to be disturbed on this lease is inventoried to determine the presence of cultural and paleontological resources and to specify those resources requiring protection and/or mitigation measures to be undertaken by the operator.

Unless notified to the contrary by the Forest Service, the operator may, at his discretion and cost, conduct the inventory on the lands to be disturbed. This inventory must be authorized by a Forest Service special use permit and must be done by, or under the supervision of, appropriate qualified specialists approved by the Forest Service. Upon review of the inventory reports, the Forest Service will specify those cultural and paleontological resources requiring protection and/or mitigation measures to be undertaken by the operator. All costs of protection and salvage of resource values will be borne by the operator and all data and materials salvaged will remain under the jurisdiction of the U.S. Government as appropriate.

- b. The operator shall immediately cease operations in areas in which any intiquities or other objects of historic or scientific interest are discovered and bring the discovery to the attention of the Forest Service and the authorized officer of the Bureau of Land Management. Any such discoveries shall be left intact until the operator is permitted to proceed by the authorized officer of the Bureau of Land Management.

6. Protection of Threatened or Endangered Species

The Forest Service is responsible for assuring adequate protection for threatened and endangered species occurring in the area to be disturbed. Prior to undertaking any surface disturbing activities on lands covered by this lease, the lessee shall contact the appropriate Forest Service officer to be advised of the occurrence of, and requirements for protection of, any plant or animal species listed or proposed for listing as endangered or threatened or their habitat. Lessee may be required to complete inventories under guidelines provided by the Forest Service if areas of proposed surface disturbance may result in adverse impacts on threatened or endangered species. Presence of such species may result in some restrictions to the operator's plans or even disallowing any use or occupancy that would detrimentally affect any of the identified species.

Discovery of any threatened or endangered species during operations will require cessation of such operations until the appropriate Forest Service officer and the authorized officer of the Bureau of Land Management have been advised and approved protective measures implemented.

Date

Lessee

SPECIAL STIPULATIONS

The following special stipulations are in addition to the lease terms and standard stipulations (Form 3109-3, and Forest Service Supplement to 3109-3), and are necessary to protect specific resource values on the lease area. If found to be in the public interest, these stipulations may be made less restrictive when specifically approved in writing by the District Engineer, Minerals Management Service, and the authorized officer of the Federal Surface Management Agency.

1. All of the land on this lease is included in (Recreation or Special Area, etc.). Therefore, no occupancy or disturbance of the surface of the land described in this lease is authorized. The Lessee, however, may exploit the oil and gas resource in this lease by directional drilling from sites outside this lease. If a proposed drilling site lies on land administered by the Bureau of Land Management or by the Forest Service, a permit for use of the site must be obtained from the BLM District Manager or the Forest Service District Ranger, before drilling or other development begins. (Note: Use of stipulation requires MMS concurrence.)
2. No access or work trail or road, earth cut or fill, structure or other improvement, other than active drill rig, will be permitted if it can be viewed from the (road, lake, river, etc.). (Note: Use of stipulation requires MMS concurrence.)
3. No occupancy or other activity on the surface of (legal subdivision) is allowed under this lease.
4. No occupancy or other surface disturbance will be allowed within _____ feet of the (road, trail, river, creek, canal, etc.). This distance may be modified when specifically approved in writing by the District Engineer of the Geologic Survey, with the concurrence of the authorized officer of the Federal Surface Management Agency.
5. No drilling or storage facilities will be allowed within _____ feet of (live water, the reservoir, the archeological site, the historical site, the paleontological site, etc.) located in (legal subdivision). This distance may be modified when specifically approved in writing by the District Engineer of the U.S. Geological Survey, with the concurrence of the authorized officer of the Federal Surface Management Agency.
6. No occupancy or other surface disturbance will be allowed on slopes in excess of _____ percent, without written permission from the District Engineer of the U.S. Geological Survey, with the concurrence of the authorized officer of the Federal Surface Management Agency.

Note: The Manti-LaSal National Forest uses 35 percent as the limiting slope. This slope value was generally identified as the slope on which operations would cause unacceptable scarring, instability, and surface disturbance. This stipulation is recommended for the total area of all leases processed by the Forest. The Forest does not, at this time, have an accurate inventory of areas having slopes in excess of 35 percent. Proposed operations will be considered on a site-specific basis.

7. In order to (minimize watershed damage, protect important seasonal wildlife habitat, etc.) exploration, drilling, and other development activity will be allowed only (during the period from _____ to _____, during dry soil period, over a snow cover, on frozen ground). This limitation does not apply to maintenance and operation of producing wells. Exceptions to this limitation, in any year, may be specifically authorized in writing by the District Engineer of the U.S. Geological Survey, with the concurrence of the authorized officer of the Federal Surface Management Agency.

8. In order to minimize watershed damage, during muddy and/or wet periods, the authorized officer of the Federal Surface Management Agency, through the District Engineer of the U.S. Geological Survey may prohibit exploration, drilling, or other development. This limitation does not apply to maintenance and operation of producing wells.
9. The (trail, road) will not be used as an access road for activities on this lease, except as follows: (no exceptions, weekdays during recreation season, etc.).
10. To maintain aesthetic values all semi-permanent and permanent facilities may require painting or camouflage to blend with the natural surroundings. The paint selection or method of camouflage will be subject to approval by the District Engineer of the Geological Survey, with the concurrence of the authorized officer of the Federal Surface Management Agency.
11. No occupancy or other activity on the surface of the following described lands is allowed under this lease:

Reasons for this restriction are:

Examples of appropriate reasons for this restriction are:

- a. Steep slopes.
- b. Specific ecosystem, ecological land unit, land type, or geologic formation which presents hazards such as mass failure.
- c. Roadless or essentially roadless area (includes Chevron and Rainbow stipulations).
- d. Special management units such as Recreation Type I, water supply, administrative site, etc.

() Approximately _____ percent of leases.

Note: This stipulation could be used in place of stipulation numbers 1, 3, and 6.

12. No _____ will be allowed within _____ feet of the _____ . This area contains _____ acres and is described as follows:

Reasons:

First blank to be filled in with one or more of the following: drilling, storage, facilities, surface disturbance, or occupancy. Second and third blanks to be filled in with one or more of the following:

- a. _____ feet wildlife habitat essential to specific species.
- b. _____ feet peripheral or unique vegetation type.
- c. 200 feet either side of centerline of roads or highways.
- d. 500 feet of normal high waterline in all streams, rivers, ponds reservoirs, lakes.

- e. 600 feet of all springs.
- f. 400 feet of any improvements.

Note: Stipulation number 12 could be used in place of stipulation numbers 5 and 6.

13. In order to (minimize)(protect) _____, _____ will be allowed only during _____. This does not apply to maintenance and operation of producing wells and facilities. Lands within leased area to which this stipulation applies, are described as follows:

Reasons:

First blank to be filled in with one or more of the following:

- a. Watershed damage.
- b. Soil erosion.
- c. Seasonal wildlife habitat (winter range, calving/fawning area, etc.).

Second blank to be filled in with one or more of the following:

- a. Surface disturbing activities.
- b. Exploration.
- c. Drilling.
- d. Development.

The third blank to be filled in with one or more of the following:

- a. Period from _____ to _____.
- b. Dry soil periods.
- c. Over the snow.
- d. Frozen ground.

Note: Stipulation number 13 could be used in place of stipulation number 7, giving greater definition as to restrictions.

14. Controlled or Limited Surface Use Stipulation - This stipulation may be modified when specifically approved in writing by the District Engineer, Geological Survey, with concurrence of the Federal Surface Management Agency. Distances and/or time periods may be made less restrictive depending on the actual on-the-ground conditions.

The Lessee/Operator is given notice that all portions of the lease area may contain specific values, may be needed for specific purposes, or may require special attention to prevent damage to surface and/or other resources. Any surface use or occupancy within such special areas will be strictly controlled or, if necessary, excluded. Use or occupancy will be authorized only when the Lessee/Operator demonstrates that the special area is essential for operations in accordance with a surface use and operations plan, which is satisfactory to the Geological Survey and the Federal Surface Management Agency for the protection of such special areas and existing or planned uses. Appropriate modifications to imposed restrictions will be made for the maintenance and operation of producing oil and gas wells; however, in extremely critical situations, occupancy may only be allowed in emergencies.

After the Federal Surface Management Agency has been advised of specific proposed surface use or occupancy on these lands, and on request of the Lessee/Operator, the agency will furnish more specific locations and additional information on such special areas, which now include:

(Legal land description to lot and/or quarter, quarter section.)

Reason for Restriction:

Duration of Restriction: (year-round, month(s))

15. Activity Coordination Stipulation - This lease includes lands within * _____, which has resource values sensitive to high levels of activity. In order to minimize impacts to these resources, special conditions, such as unitization prior to approval of operations, and/or other limitations to spread surface disturbance activities over time and space may be required prior to approval and commencement of any operations on the lease.
16. Protection of Endangered or Threatened Species - The Federal Surface Management Agency is responsible for assuring that the area to be disturbed is examined prior to undertaking any surface-disturbing activities on lands covered by this lease, to determine effects upon any plant or animal species listed or proposed for listing as endangered or threatened, or their habitats. If the findings of this examination determine that the operation may detrimentally affect an endangered or threatened species, or its habitat, some restrictions to the operator's plans or even disallowance of use may result.

The following statements apply to all of the supplemental stipulations and must be included in all recommendations:

- a. "If found to be in the public's interest, these stipulations may be made less restrictive when specifically approved in writing by the District Engineer, Geological Survey, and the authorized officer of the Federal Surface Management Agency."
- b. "Prior to acceptance of this stipulation, the prospective Lessee is encouraged to contact the Federal Surface Management Agency for further information regarding the restricting nature of this stipulation."
- c. "Any change in the wording of these stipulations must be approved by the Department of the Interior."

*Wilderness Area, Further Planning Areas, Areas of Threatened and Endangered Species.

PROSPECTING PERMIT

(Geophysics, Oil and Gas, Geothermal, Acquired Minerals)
(Act of June 4, 1897) (Rel: FSM 2821)

FILE REFERENCE

NAME OF PERMITTEE

DATE OF APPLICATION

Permission is hereby granted to _____
of _____
to use the following-described lands: _____
(Describe the lands to be occupied with reference to a Government survey.

State-grant road, stream, or well-known landmark)

for the purpose of making excavations, drilling shot holes, or doing other work thereon necessary for determining whether there are mineral deposits of such quantity and value as would warrant application to the Bureau of Land Management, Department of the Interior, for:

- a. A prospecting permit granting a preference right to lease, or
- b. A lease authorizing exploration and development of mineral or energy resources.

and the erection of such temporary structures and/or facilities as are requisite thereto.

This permit is granted subject to all valid claims to the described lands, and to the following conditions:

- 1a. The permittee shall pay in advance to the Forest Service, U.S. Department of Agriculture, an annual rental in the sum of \$ _____.*
- 1b. The permittee shall pay to the Forest Service, U.S. Department of Agriculture, the sum of \$ _____ for _____

*Strike out 1a or 1b, whichever is inapplicable.

2. The permittee, in exercising the privileges granted by this permit, shall comply with the regulations of the Department of Agriculture and all Federal, State, county, and municipal laws, ordinances, or regulations which are applicable to the area or operations covered by this permit, including, but not limited to, those pertaining to fire, sanitation, fish, and game.
3. This permit is accepted subject to the conditions set forth herein, and to conditions _____ to _____ attached hereto and made a part of this permit.

PERMITTEE	NAME OF PERMITTEE	SIGNATURE OF AUTHORIZED OFFICER	DATE
		TITLE	
ISSUING OFFICER	NAME AND SIGNATURE	TITLE	DATE

(CONTINUED ON REVERSE)

16. _____ (Name) _____ (Title)
- _____ (Address) _____ (Business Phone)
- _____ (ZIP) _____ (Home Phone)

17. In the event of any conflict between any of the preceding printed clauses or any provision thereof and any of the following clauses or any provision thereof, the following clauses will control.

REGIONAL STIPULATIONS

1. "This permit does not authorize any operations in conflict with an outstanding Bureau of Land Management mineral lease or permit."
2. "Before beginning any exploration work, including access and work road location and construction, the permittee shall prepare a 'Prospecting Plan'. This plan should be prepared after consultation with the District Ranger or Rangers in whose District the work will be done. The final plan, including maps shall be submitted, in triplicate, to the Forest Supervisor, _____ National Forest, for final approval, at least one week before any operations are to be commenced under the plan. Such approval will be conditioned on reasonable requirements needed to prevent soil erosion, water pollution, and unnecessary damages to the surface vegetation and other resources of the United States and to provide for the restoration of the land surface and vegetation. The plan shall contain all such provisions as the Forest Service may deem necessary to maintain proper management of the lands and resources within the prospecting areas and must be in harmony with the provisions of the National Environmental Quality Act of 1970, as amended. Where appropriate, depending upon the location and type of operation, the Forest Supervisor may require the plan to contain, but not be limited to the following items:
 - a. The location, construction specifications, maintenance program, and estimated use by the permittee, his employees, and agents of all access and work roads.
 - b. The exact location and extent of any and all areas on which there will be surface disturbance during the operations including a suitable map or aerial photograph which shows topographic, cultural, and drainage features involved.
 - c. The methods to be used in the operations, including disposal of waste material.
 - d. The size and type of equipment to be used in the operation.
 - e. The name, address, and telephone number of the permittee and of his designated field representative who will be responsible for operations under the permit.

If later exploration requires departure from or additions to the approved plan, these revisions or amendments, together with justification statement for proposed revisions, will be submitted to the Forest Supervisor at least one week before operations under the proposed revision or amendment are to begin.

If, in the judgement of the Forest Supervisor, later exploration or other developments require modification of an approved plan, the Forest Supervisor may require the operator to make revisions or amendments of the operations thereunder, in accordance with the foregoing principles.

Any and all operations conducted in advance of approval of an original, revised, or amended prospecting plan, or which are not in accord with an approved plan, constitute a violation of the terms of this permit and the Forest Service reserves the right to close down operations until such corrective action, as is deemed necessary, is taken by the permittee.

3. The permittee shall furnish and maintain a reclamation bond in the amount of \$ _____ conditioned upon compliance with the terms and conditions of the permit. (Note: Reclamation does not include fire liability or other actions in connection with the operations.)

4. Explosives must be stored and handled in compliance with Federal, State, and local rules and regulations governing the use of such items.
5. Reclamation includes, but is not limited to, cleanup, removal, and proper disposal of stakes, flagging, explosive debris, and other materials utilized during exploration.
6. Upon completion of exploration, all drilled holes will be plugged and abandoned in conformance with applicable Federal and State laws and regulations.
7. This prospecting permit will expire on _____, unless an extension of time is authorized in writing by the Forest Supervisor or his designated representative.
8. Prior to bond release and permit termination, a map will be furnished the Forest Supervisor or his designated representative showing the location and number of holes drilled and information concerning location and depth of underground water encountered during testing, and a final inspection of the test sites will be made by the permittee with the Forest Supervisor or his designated representative.

MANTI-LASAL NATIONAL FOREST STIPULATIONS

Required Stipulations

- A. The following 16 stipulations were formulated by the Manti-LaSal National Forest to be included on all prospecting permits issued by the Forest. They will be numbered 26 through 41 on the permits.
 1. All surface-disturbing activities conducted under this permit must be supervised by a designated, responsible official or representative of the permittee who is aware of the terms and conditions of this permit.
 2. A copy of this permit must be available at the project site during operations and must be presented to any Forest Service official upon request.
 3. The Manti-LaSal National Forest reserves the right to suspend all permits during periods of high fire potential.
 4. Any and all damages to resources, structures, and improvements which result from the permittee's operations must be repaired as soon as possible. The Forest Service must be notified of such damages. Repairs must meet Forest Service specifications.
 5. If cultural or paleontological resources are discovered during operations, all operations which may result in disturbance to the resource must cease and the Forest Service must be notified of the discovery.
 6. Section corners claim markers or other survey markers within the project area must be flagged for preservation prior to commencement of surface-disturbing operations. The removal, displacement, or disturbance of markers is not permitted.
 7. Fire suppression equipment must be available to all personnel on the project site. Equipment must include a minimum of one hand tool per crew member consisting of shovels and pulaskis, and one properly rated fire extinguisher per vehicle and/or internal combustion engine.

8. All gasoline, diesel, and steam-powered equipment must be equipped with effective spark arresters and mufflers. Spark arresters must meet Forest Service specifications discussed in the USDA Forest Service Spark Arrester Guide, June 1981. In addition, all electrical equipment must be properly insulated to prevent sparks.
 9. The permittee will be held responsible for damage and suppression costs for fires started as a result of operations. Fires must be reported to the Forest Service as soon as possible.
 10. Off-road vehicle travel is prohibited unless specifically approved by the Forest Service.
 11. All operations must be suspended during inclement weather conditions. Use of Forest roads must be avoided when they are wet and susceptible to rutting. In either case, the Forest Service must be notified as soon as possible when operations are postponed.
 12. Harassment of wildlife and livestock is prohibited.
 13. All range fence gates which are opened for access must be closed after passing through, unless otherwise notified.
 14. All accidents or mishaps resulting in significant resource damage and/or serious personal injury must be reported to the Forest Service.
 15. Water needed in support of operations must be properly and legally appropriated according to State water laws. The location of diversions, if on National Forest System lands, is subject to Forest Service review and approval.
 16. Vehicle operators must observe safe speeds commensurate with road and weather conditions.
- B. The Following Standard Stipulations will be Required when Surveys Involve the Use of Explosives
1. The operator must establish and observe a buffer distance from structures, reservoirs, streams, springs, resource improvements, and unstable areas beyond which blasting may be conducted without damage or significant effects.
 2. Flagmen and/or observers must be posted at strategic locations during blasting to minimize the potential hazard to Forest resource users, wildlife, and livestock.
 3. Explosive materials must not be left unattended at any time unless properly secured in storage magazines at approved locations.
 4. If detonations result in cratering of the ground surface and/or damage to the root systems of vegetation, the disturbed areas must be backfilled and seeded with a seed mix specified by the Forest Service.
- C. The Following Stipulations will be Required when Operations Include the Use of Vibrator or Thumper Trucks (Vibrosets Method)
1. Vibrating on bituminous surfaced Forest Development Roads is prohibited.
 2. The operator must establish and observe a buffer distance from structures, reservoirs, streams, springs, resource improvements, and unstable areas beyond which vibrating will not cause damage or significant effects.

3. Flagmen must be posted to control traffic and notify motorists when vibrating is being conducted along Forest Development Roads.

D. The Following Standard Stipulations will be Required when Helicopters are Used in Support of Projects

1. A flight plan must be submitted to the Forest Service as part of the proposal for Forest Service review and approval.
2. Staging areas must be approved by the Forest Service prior to their establishment and use.

E. The Following Stipulations are Required when Operations Involve Drilling

1. Drill holes must be plugged by backfilling the cuttings. Holes drilled to a depth of 100 feet or more must be backfilled to within six to seven feet of the natural ground surface. A five-foot concrete plug must be poured into the hole, the remaining one to two feet must be backfilled with soil. Holes drilled on exposed bedrock must be plugged so that the top of the concrete plug is flush with the bedrock surface.

All holes which encounter flowing water, oil, or gas must be plugged by grouting concrete or plugging mud into the hole from at least 50 feet above and 50 feet below the aquifer and/or oil and gas-bearing formation. The remaining portion of such holes, if any, must be plugged as discussed above. The Forest Service must be notified of any artesian holes.

2. Any remaining cuttings must be buried.
3. If drilling foams or other fluids are used to enhance circulation, the fluids and cuttings must be contained on-site. If mud pits are constructed for this purpose, they must be allowed to dry and be backfilled. Prior Forest Service approval must be obtained regarding the use of drilling fluids and method for containing them.
4. If marking of holes for future identification is desired, the method of marking and materials to be used is subject to Forest Service approval.

F. The Following Stipulation will be Required when Operations are Proposed to Take Place in Critical or Sensitive Wildlife Habitat Areas

1. Operations are prohibited within the following described area(s):

(Legal Description) _____
from (date) _____ to _____.

These dates may be modified by the Forest Service based on weather conditions and observed wildlife behavior in this/these area(s).

- G. Additional stipulations may be required to elaborate on the above stipulations or to mitigate site-specific issues, concerns, and/or adverse effects. Such stipulations may include seasonal restrictions, reclamation requirements, required seed mixes, requirements for construction of project roads and drill pads, and for reconstruction or maintenance of Forest Development Roads, etc.

LOCATABLE MINERAL MITIGATION STATEMENTS

Approval of a plan of operation by the Forest Service shall be accompanied by the following statements (FSM 2817.23, 2/83 Amend. 22):

Approval of this operating plan does not constitute recognition or certification of ownership by any person named as owner herein.

Approval of this operating plan does not constitute now or in the future recognition or certification of the validity of any mining claims to which it may relate or to the mineral character of the land on which it lies.

REQUIRED AND SPECIAL MITIGATION STATEMENTS FOR URANIUM DRILLING

Statements #1 and #2 are required for approval of all operating plans (FSM 2817.23, 2/83, Amend. 22).

Mitigation measures #3 through #22 will be considered for approval of operating plans as needed.

1. Approval of this Operating Plan does not constitute recognition or certification of the validity of ownership by any person named as owner herein.
2. Approval of this Operating Plan does not constitute now or in the future, recognition or certification of the validity of any of the mining claims to which it may relate nor the mineral character of the land on which it lies.
3. Changes and additions to the approved Plan of Operations must be submitted to the District Ranger for approval as a revised or supplemental plan. The revised or supplemental Plan of Operations must be approved by the District Ranger before work may begin.
4. The operator shall furnish and maintain a reclamation bond in the amount of \$ _____ conditioned upon compliance with the terms and conditions of approval of the Plan of Operations. (Note: Reclamation does not include fire liability or other actions in connection with the operator.)
5. Prior to bond release, a map must be furnished the District Ranger or his designated representative showing the location and number of holes drilled and information concerning location and depth of underground water encountered during testing. A final inspection of the project area must also be made by the operator with the District Ranger or his designated representative.
6. The District Ranger must be notified of the intent to establish a temporary camp or living quarters for company employees or contractors. Approval must be obtained from the District Ranger prior to construction or occupancy of such facilities.
7. All surface disturbing activities and operations must be supervised by a company representative knowledgeable of the terms and conditions of approval of the Plan of Operations.
8. Section corners or other survey markers within the project area must be flagged for preservation prior to commencement of surface disturbing operations. The removal, displacement, or disturbance of markers must be approved by the proper authority.

9. All surface disturbing operations must cease in the event that archeological or cultural resources are unearthed or discovered. The District Ranger or his designated representative must be immediately notified of the situation. Operations may again commence upon Forest Service approval.
10. Harassment of wildlife and livestock is prohibited.
11. The operator is responsible for immediate repairs of any and all damages to roads, structures, and improvements, which result from his operations, at his own expense.
12. Gates and livestock fences must be kept closed unless otherwise posted.
13. All equipment and debris must be removed from the National Forest upon completion of operations. All trash and garbage must be properly disposed of at an approved refuse area. Disposal or burial of any such materials in mud pits or other areas, or by burning, on the National Forest is prohibited.
14. Water must be legally obtained in accordance with State water laws.
15. Vehicle operators must maintain safe speeds commensurate with existing road traffic and weather conditions.
16. Removal of vegetation must be limited to that necessary for operations. Removal or trimming of trees must be avoided whenever possible.
17. Adequate fire suppression equipment must be readily available to employees and contractors at the project site. This will include at least one hand-held implement per man consisting of shovels and axes and one fire extinguisher per vehicle.
18. All motorized equipment will have working mufflers and spark arresters. Electrical equipment must be properly insulated. Vehicles equipped with catalytic converters will be parked in clear areas to avoid igniting potential fuels such as grass and brush.
19. The District Ranger or his designated representative must be notified when operations are completed and informed as to when reclamation work will begin.
20. All drill holes must be plugged as soon as possible as follows:

Cuttings must be backfilled to within six to seven feet of the ground surface. A five-foot concrete plug must be poured into the hole to within one to two feet of the ground surface. The remaining one to two feet should be filled with soil or appropriate surface material.

Holes drilled on exposed bedrock must be plugged so that the top of the concrete plug is flush with the surface.

All holes having significant water flowing to the surface or encountering oil and/or gas must be plugged with concrete from at least 50 feet above and 50 feet below the aquifer or oil or gas bearing formation. The remaining length of such holes, if any, must be plugged as discussed above.
21. The method and materials used to mark hole locations must be approved by the District Ranger.
22. Mining and major road construction are not covered by this report.

APPENDIX C

UNSUITABILITY AND MULTIPLE USE MANAGEMENT EVALUATION

Introduction

Factors determining land acceptability for coal leasing are capability assessment, application of unsuitability criteria, and an evaluation using multiple use management criteria. The Bureau of Land Management completed the capability assessment and by map and letter dated January 24, 1983 identified lands, 400,300 acres in Federal ownership within the Manti-LaSal National Forest boundary, containing mineable coal. The purpose of this appendix is to display the application of unsuitability criteria (43 CFR 3461.1) and multiple use management decisions (43 CFR 3420.1-3) to these lands. The application of unsuitability and Multiple Use Criteria determine suitability and lead to the clearance, elimination, and/or delay in leasing coal deposits. Clearance of coal lands for leasing does not preclude further evaluation on a site-specific basis of individual lease tracts or development activities.

Unsuitability Assessment

The 20 unsuitability criteria (Table C-1) defined in Federal Regulation (43 CFR 3461.1) were applied to the 400,300 acres identified as containing mineable coal. Seven of the unsuitability criteria do not apply because the criteria does not exist within these coal lands. Four more criteria were found not to be applicable after exceptions and exemptions were applied. Nine of the criteria were excepted or exempted insofar as leasing is concerned, but should be applied on a project by project basis, since they occur and may affect surface developments (see Table C-2).

TABLE C-1

UNSUITABILITY CRITERIA
FEDERAL REGULATION (43 CFR 3461.1)

CRITERION NUMBER 1 - All Federal lands included in the following land systems or categories shall be considered unsuitable: National Park System, National Wildlife Refuge System, National System of Trails, National Wilderness Preservation System, National Wild and Scenic Rivers System, National Recreation Areas, lands acquired with money derived from the Land and Water Conservation Fund, National Forests, and Federal lands in incorporated cities, towns, and villages.

Exceptions - (i) A lease may be issued within the boundaries of any National Forest if the Secretary finds no significant recreational, timber, economic, or other values which may be incompatible with the lease; and (A) surface operations and impacts are incident to an underground coal mine, or (B) where the Secretary of Agriculture determines, with respect to lands which do not have significant forest cover within those National Forests west of the 100th Meridian, that surface mining may be in compliance with the Multiple-Use Sustained-Yield Act of 1960, the Federal Coal Leasing Amendments Act of 1976 and the Surface Mining Control and Reclamation Act of 1977.

(ii) A lease may be issued within the Custer National Forest with the consent of the Department of Agriculture as long as no surface coal mining operations are permitted.

Exemptions - The application of this criterion to lands within the listed land systems and categories is subject to valid existing rights, and does not apply to surface coal mining operations existing on August 3, 1977. The application of the portion of this criterion applying to land proposed for inclusion in the listed systems does not apply to lands: To which substantial legal and financial commitments were made prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which include operations on which a permit has been issued.

CRITERION NUMBER 2 - Federal lands that are within rights-of-way or easements or within surface leases for residential, commercial, industrial, or other public purposes, on federally owned surface shall be considered unsuitable.

Exceptions - A lease may be issued, and mining operations approved, in such areas if the surface management agency determines that:

(i) All or certain types of coal development (e.g., underground mining) will not interfere with the purpose of the right-of-way or easement; or

(ii) The right-of-way or easement was granted for mining purposes; or

(iii) The right-of-way or easement was issued for a purpose for which it is not being used; or

(iv) The parties involved in the right-of-way or easement agree, in writing, to leasing; or

(v) It is impractical to exclude such areas due to the location of coal and method of mining and such areas or uses can be protected through appropriate stipulations.

Exemptions - This criterion does not apply to lands: To which the operator made substantial legal and financial commitments prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which include operations on which a permit has been issued.

CRITERION NUMBER 3 - Federal lands affected by section 522(e) (4) and (5) of the Surface Mining Control and Reclamation Act of 1977 shall be considered unsuitable. This includes lands within 100 feet of the outside line of the right-of-way of a public road or within 100 feet of a cemetery, or within 300 feet of any public building, school, church, community, or institutional building or public park or within 300 feet of an occupied dwelling.

Exceptions - A lease may be issued for lands:

(i) Used as mine access roads or haulage roads that join the right-of-way for a public road;

(ii) For which the Office of Surface Mining Reclamation and Enforcement has issued a permit to have public roads relocated;

(iii) If, after public notice and opportunity for public hearing in the locality, a written finding is made by the authorized officer that the interests of the public and the landowners affected by mining within 100 feet of a public road will be protected.

(iv) For which owners of occupied dwellings have given written permission to mine within 300 feet of their buildings.

Exemptions - The application of this criterion is subject to valid existing rights, and does not apply to surface coal mining operations existing on August 3, 1977.

CRITERION NUMBER 4 - Federal lands designated as wilderness study areas shall be considered unsuitable while under review by the Administration and the Congress for possible wilderness designation. For any Federal land which is to be leased or mined prior to completion of the wilderness inventory by the surface management agency, the environmental assessment or impact statement on the lease sale or mine plan shall consider whether the land possesses the characteristics of a wilderness study area. If the finding is affirmative, the land shall be considered unsuitable, unless issuance of noncompetitive coal leases and mining on leases is authorized under the Wilderness Act and the Federal Land Policy and Management Act of 1976.

TABLE C-1 (Continued)

UNSUITABILITY CRITERIA
FEDERAL REGULATION (43 CFR 3461.1)

Exemptions - The application of this criterion to lands for which the Bureau of Land Management is the surface management agency and lands in designated wilderness areas in National Forests is subject to valid existing rights.

CRITERION NUMBER 5 - Scenic Federal lands designated by visual resource management analysis as Class I (an area of outstanding scenic quality or high visual sensitivity) but not currently on the National Register of Natural Landmarks shall be considered unsuitable. A lease may be issued if the surface management agency determines that surface coal mining operations will not significantly diminish or adversely affect the scenic quality of the designated area.

Exemptions - This criterion does not apply to lands: To which the operator made substantial legal and financial commitments prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which included operations on which a permit has been issued.

CRITERION NUMBER 6 - Federal lands under permit by the surface management agency, and being used for scientific studies involving food or fiber production, natural resources, or technology demonstrations and experiments shall be considered unsuitable for the duration of the study, demonstration or experiment, except where mining could be conducted in such a way as to enhance or not jeopardize the purposes of the study, as determined by the surface management agency, or where the principal scientific user or agency gives written concurrence to all or certain methods of mining.

Exemptions - This criterion does not apply to lands: To which the operator made substantial legal and financial commitments prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which include operations on which a permit has been issued.

CRITERION NUMBER 7 - All districts, sites, buildings, structures, and objects of historic, architectural, archeological, or cultural significance on Federal lands which are included in or eligible for inclusion in the National Register of Historic Places, and an appropriate buffer zone around the outside boundary of the designated property (to protect the inherent values of the property that make it eligible for listing in the National Register) as determined by the surface management agency, in consultation with the Advisory Council on Historic Preservation and the State Historic Preservation Office shall be considered unsuitable.

Exceptions - All or certain stipulated methods of coal mining may be allowed if the surface management agency determines, after consultation with the Advisory Council on Historic Preservation and State Historic

Preservation Office that the direct and indirect effects of mining, as stipulated, on a property in or eligible for the National Register of Historic Places will not result in significant adverse impacts to the property.

Exemptions - The application of this criterion to a property listed in the National Register is subject to valid existing rights, and does not apply to surface coal mining operations existing on August 3, 1977. The application of the criterion to buffer zones and properties eligible for the National Register does not apply to lands: To which the operator made substantial legal and financial commitments prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which include operations on which a permit has been issued.

CRITERION NUMBER 8 - Federal lands designated as natural areas or as National Natural Landmarks shall be considered unsuitable.

Exceptions - A lease may be issued and mining operation approved in an area or site if the surface management agency determines that:

(i) With the concurrence of the state, the area or site is of regional or local significance only;

(ii) The use of appropriate stipulated mining technology will result in no significant adverse impact to the area or site; or

(iii) The mining of the coal resource under appropriate stipulations will enhance information recovery (e.g., paleontological sites).

Exemptions - This criterion does not apply to lands: To which the operator made substantial legal and financial commitments prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which includes operations on which a permit has been issued.

CRITERION NUMBER 9 - Federally designated critical habitat for threatened or endangered plant and animal species, and habitat for Federal threatened or endangered species which is determined by the Fish and Wildlife Service and the surface management agency to be of essential value and where the presence of threatened or endangered species has been scientifically documented, shall be considered unsuitable.

Exceptions - A lease may be issued and mining operations approved if, after consultation with the Fish and Wildlife Service, the Service determines that the proposed activity is not likely to jeopardize the continued existence of the listed species and/or its critical habitat.

TABLE C-1 (Continued)

UNSUITABILITY CRITERIA
FEDERAL REGULATION (43 CFR 3461.1)

Exemptions - This criterion does not apply to lands: To which the operator made substantial legal and financial commitments prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which include operations on which a permit has been issued.

CRITERION NUMBER 10 - Federal lands containing habitat determined to be critical or essential for plant or animal species listed by a state pursuant to state law as endangered or threatened shall be considered unsuitable.

Exceptions - A lease may be issued and mining operations approved if, after consultation with the state, the surface management agency determines that the species will not be adversely affected by all or certain stipulated methods of coal mining.

Exemptions - This criterion does not apply to lands: To which the operator made substantial legal and financial commitments prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which include operations on which a permit has been issued.

CRITERION NUMBER 11 - A bald or golden eagle nest or site on Federal lands that is determined to be active and an appropriate buffer zone of land around the nest site shall be considered unsuitable. Consideration of availability of habitat for prey species and of terrain shall be included in the determination of buffer zones. Buffer zones shall be determined in consultation with the Fish and Wildlife Service.

Exceptions - A lease may be issued if:

(i) It can be conditioned in such a way, either in manner or period of operation, that eagles will not be disturbed during breeding season; or

(ii) The surface management agency, with the concurrence of the Fish and Wildlife Service, determines that the golden eagle nest(s) will be moved.

(iii) Buffer zones may be decreased if the surface management agency determines that the active eagle nests will not be adversely affected.

Exemptions - This criterion does not apply to lands: To which the operator made substantial legal and financial commitments prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which include operations on which a permit has been issued.

CRITERION NUMBER 12 - Bald and golden eagle roost and concentration areas on Federal lands used during migration and wintering shall be considered unsuitable.

Exceptions - A lease may be issued if the surface management agency determines that all or certain stipulated methods of coal mining can be conducted in such a way, and during such periods of time, to ensure that eagles shall not be adversely disturbed.

Exemptions - This criterion does not apply to lands: To which the operator made substantial legal and financial commitments prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which include operations on which a permit has been issued.

CRITERION NUMBER 13 - Federal lands containing a falcon (excluding kestrel) cliff nesting site with an active nest and a buffer zone of Federal land around the nest site shall be considered unsuitable. Consideration of availability of habitat for prey species and of terrain shall be included in the determination of buffer zones. Buffer zones shall be determined in consultation with the Fish and Wildlife Service.

Exceptions - A lease may be issued where the surface management agency, after consultation with the Fish and Wildlife Service, determines that all or certain stipulated methods of coal mining will not adversely affect the falcon habitat during the periods when such habitat is used by the falcons.

Exemptions - This criterion does not apply to lands: To which the operator made substantial legal and financial commitments prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which include operations on which a permit has been issued.

CRITERION NUMBER 14 - Federal lands which are high priority habitat for migratory bird species of high Federal interest on a regional or national basis, as determined jointly by the surface management agency and the Fish and Wildlife Service, shall be considered unsuitable.

Exceptions - A lease may be issued where the surface management agency, after consultation with the Fish and Wildlife Service, determines that all or certain stipulated methods of coal mining will not adversely affect the migratory bird habitat during the periods when such habitat is used by the species.

Exemptions - This criterion does not apply to lands: To which the operator made substantial legal and financial commitments prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which include operations on which a permit has been issued.

CRITERION NUMBER 15 - Federal lands which the surface management agency and the state jointly agree are fish and wildlife habitat for resident species of high interest to the state and which are essential for maintaining these priority wildlife species shall be

TABLE C-1 (Continued)

UNSUITABILITY CRITERIA
FEDERAL REGULATION (43 CFR 3461.1)

considered unsuitable. Examples of such lands which serve a critical function for the species involved include:

(i) Active dancing and strutting grounds for sage grouse, sharp-tailed grouse, and prairie chicken;

(ii) Winter ranges most critical for deer, antelope, and elk; and

(iii) Migration corridors for elk.

Exceptions - A lease may be issued if, after consultation with the state, the surface management agency determines that all or certain stipulated methods of coal mining will not have a significant long-term impact on the species being protected.

Exemptions - This criterion does not apply to lands: To which the operator made substantial legal and financial commitments prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which include operations on which a permit has been issued.

CRITERION NUMBER 16 - Federal lands in riverine, coastal and special floodplains (100-year recurrence interval) on which the surface management agency determines that mining could not be undertaken without substantial threat of loss of life or property shall be considered unsuitable for all or certain stipulated methods of coal mining.

Exemptions - This criterion does not apply to lands: To which the operator made substantial legal and financial commitments prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which include operations on which a permit has been issued.

CRITERION NUMBER 17 - Federal lands which have been committed by the surface management agency to use as municipal watersheds shall be considered unsuitable.

Exception - A lease may be issued where the surface management agency in consultation with the municipality (incorporated entity) or the responsible governmental unit determines, as a result of studies, that all or certain stipulated methods of coal mining will not adversely affect the watershed to any significant degree.

Exemptions - This criterion does not apply to lands: To which the operator made substantial legal and financial commitments prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which include operations on which a permit has been issued.

CRITERION NUMBER 18 - Federal lands with National Resource Waters, as identified by states in their water quality management plans, and a buffer zone of Federal lands one-fourth mile from the other edge of the far banks of the water, shall be unsuitable.

Exceptions - The buffer zone may be eliminated or reduced in size where the surface management agency determines that it is not necessary to protect the National Resource Waters.

Exemptions - This criterion does not apply to lands: To which the operator made substantial legal and financial commitments prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which include operations on which a permit has been issued.

CRITERION NUMBER 19 - Federal lands identified by the surface management agency, in consultation with the state in which they are located, as alluvial valley floors according to the definition in 3400.0-5(a) of this title, the standards in 30 CFR Part 822, the final alluvial valley floor guidelines of the Office of Surface Mining Reclamation and Enforcement when published, and approved State programs under the Surface Mining Control and Reclamation Act of 1977, where mining would interrupt, discontinue, or preclude farming, shall be considered unsuitable. Additionally, when mining Federal land outside an alluvial valley floor would materially damage the quantity or quality of water in surface or underground water systems that would supply alluvial valley floors, the land shall be considered unsuitable.

Exemptions - This criterion does not apply to surface coal mining operations which produced coal in commercial quantities in the year preceding August 3, 1977, or which had obtained a permit to conduct surface coal mining operations.

CRITERION NUMBER 20 - Federal lands in a state to which is applicable a criterion (i) proposed by that state, and (ii) adopted by rulemaking by the Secretary, shall be considered unsuitable.

Exceptions - A lease may be issued when:

(i) Such criterion is adopted by the Secretary less than 6 months prior to the publication of the draft comprehensive land use plan or land use analysis, plan, or supplement to a comprehensive land use plan, for the area in which such land is included, or

(ii) After consultation with the state, the surface management agency determines that all or certain stipulated methods of coal mining will not adversely affect the value which the criterion would protect.

Exemptions - This criterion does not apply to lands: To which the operator made substantial legal and financial commitments prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which include operations on which a permit has been issued.

TABLE C-2

APPLICATION OF UNSUITABILITY CRITERIA

<u>Criteria</u>	<u>Application</u>			<u>Comments</u>
	<u>Not Applicable (1)</u>	<u>Not Applicable Excepted or Exempted (2)</u>	<u>Applicable (3)</u>	
1. Federal Lands, etc.		X		
2. Rights-of-Way, Surface Leases, etc.			X	
3. Rights-of-Way, Public Facilities, etc.			X	
4. Wilderness Study Areas	X			No existing or proposed wilderness study areas within the coal lands.
5. Class I Visual Quality Areas			X	
6. Scientific Study Area			X	
7. Cultural or Historical Resources			X	
8. National Natural Landmarks	X			No landmarks have been designated presently, but future designations may be expected.
9. Threatened and Endangered Species Sites			X	
10. Threatened and Endangered Species Habitat			X	
11. Bald and Golden Eagle Nests		X		
12. Bald and Golden Eagle Roosts and Concentration Areas		X		
13. Falcon Nesting Sites		X		
14. High Priority Habitat (Migratory Birds)	X			
15. High Interest Species Habitat			X	
16. Riverine, Coastal and Floodplains			X	
17. Municipal Watersheds	X			Local watersheds do not meet Municipal Watershed (USDI) criteria.
18. Natural Resource Waters	X			No Natural Resource Waters within coal lands.
19. Alluvial Valley Floors	X			No Alluvial Valley Floors within coal lands.
20. State Criterion	X			UMC 762.11 a and b and UMC 762.12 do not list criteria applicable to these lands.

(1) Criteria found not applicable to any forest lands.

(2) Criteria found not applicable to any forest lands once exceptions and exemptions have been applied.

(3) Criteria found applicable to forest lands but on a project specific basis, excepted and exempted for leasing.

Multiple-Use Management Decisions

Through the Land Management Planning process, broad management decisions have been made that clear, eliminate, and/or delay coal land leasing. Coal lands within the Forest are in 8 unique areas (see Appendix F Map F-1) that do not follow surface resource management unit boundaries (see Land and Resource Management Plan Map in packet). Issues and/or resource thresholds were identified for the coal lease areas, and through multiple use evaluations, a conclusion was reached on the suitability of the areas for leasing. Table C-3 provides a list of the areas and their location, the issues and concerns related to lease actions, and the conclusions related to multiple use management.

TABLE C-3

COAL LEASE UNIT
MULTIPLE-USE EVALUATIONS

<u>Area Name and Location</u>	<u>Issues and Concerns</u>	<u>Conclusions</u>
1. <u>Pleasant Valley - Fish Creek</u> Includes that portion of the Forest within the Pleasant Valley and Fish Creek watershed.	1. Pollution at Scofield Reservoir exceeds Utah water quality standards (threshold).	1. Further lease action considerations other than for supplying existing operations will be delayed until current impacts to water quality have been mitigated and the proposed development activities related to leasing will not cause the threshold to be exceeded.
2. <u>Huntington Canyon - Gentry Mountain</u> Includes that portion of the Forest within the Huntington River watershed, and a portion of the Price River watershed draining the east side of Gentry Mountain and Castle Valley Ridge.	2. Water quality, traffic, visual quality, and recreation thresholds. Increases in current traffic levels will restrict traffic flows, interrupt wildlife movement and increase road kills.	2. This area will be available for further lease action consideration. Existing leases on Gentry Mountain are being mined mainly through portals on the eastern escarpment. Further lease actions utilizing Huntington Canyon for transportation and mine development, other than for supplying existing operations, will be delayed until it is determined that unacceptable impacts to existing resources would not occur.
3. <u>Joe's Valley Reservoir - Straight Canyon</u> Includes that portion of the Forest below the escarpment of North Horn and Trail Mountains in Straight Canyon and the Joe's Valley Recreational Complex.	3. Recreation, traffic, visual quality, and land instability thresholds. Present Straight Canyon Road is not adequate for heavy truck traffic.	3. This area will not be available for further coal lease action considerations in order to maintain existing resources. The existing road through Straight Canyon will not be upgraded to accommodate heavy truck traffic due to presence of unstable canyon slopes.
4. <u>Muddy Creek Drainage</u> Includes that portion of the Forest bound on the north by the drainage divide between Ferron and Muddy Creek, on the west by the unsuitable coal lands, on the south by the 39th latitude to Box Canyon, and then follows the east escarpment of Box Canyon to Muddy Creek, and then the south escarpment of Muddy Creek to the Forest boundary.	4. Community infrastructure, growth, and Forest recreation opportunity spectrum level thresholds. Adequate coal deposit information. Potential deer and elk key winter range thresholds.	4. This area will not be available for further coal lease action consideration until it is determined that any activity would not adversely affect the minimum viable populations for management indicator species (deer and elk), cause undesirable community growth, or be incompatible with existing resource uses.
5. <u>Upper Bench</u> Includes that portion of the Forest on the bench between Joe's Valley Graben and Skyline Drive from Potter's Canyon south to the drainage divide between Ferron and Muddy Creeks.	5. Potential hydrologic, land instability, visual quality, and recreation thresholds. Inadequate coal deposit information.	5. This area will not be available for further coal lease action consideration until adequate data is supplied to (a) show that leasing and mine development will be within standards and guidelines, (b) to determine impacts on the numerous seeps, springs, lakes, perched aquifers, and riparian areas, and (c) to show that leasing and mine development would not induce mass movements.

TABLE C-3 (Continued)

COAL LEASE UNIT
MULTIPLE-USE EVALUATIONS

<u>Area Name and Location</u>	<u>Issues and Concerns</u>	<u>Conclusions</u>
6. <u>Quitichupah - Pines Area</u> Includes that portion of the Forest bound on the north by the 39th latitude to Box Canyon, and then follows the east escarpment of Box Canyon to Muddy Creek, and then the south escarpment of Muddy Creek to the Forest boundary. The Forest boundary provided the other boundary of the area.	6. Deer and elk key winter range, community infrastructure, and growth threshold. Insufficient coal deposit information. Reduction in Forest planned recreational opportunity spectrum levels.	6. One coal tract, that can be mined from the southern and eastern escarpments (Quitichupah, Dry Fork Creek, or Link Canyon), will be available for further coal lease action consideration. Lease actions for the second tract will be delayed until the first tract has been mined out or when threshold levels are capable of accommodating added mining.
7. <u>Mount Pleasant Ridge</u> Includes that portion of the Forest west of Skyline Drive, north of Pleasant Creek, and south of Crooked Creek.	7. Land instability water quality and quantity standards, and wildlife habitat thresholds.	7. This area will not be available for further coal lease action consideration until adequate data is supplied to show that leasing and mine development will be within standards and guidelines, and would not induce mass movements or adversely impact community water supplies.
8. <u>Ferron Canyon, Cottonwood - Trail Mountain</u> Includes that portion of the Forest, North Horn, South Horn, East, and Trail Mountains, the Joe's Valley Graben south of Scad Valley Divide and north of the Muddy Creek watershed, excluding the Joe's Valley Recreational Complex and Straight Canyon.	8. Deer and elk key winter range thresholds. Insufficient coal, geologic, and mine feasibility information.	8. Coal lands other than in Joes Valley Graben will be available for further lease action consideration. Prior to leasing, additional data on coal extent, quality, and mining accessibility are needed to determine extent and configuration of leasing in and west of Joe's Valley Graben. Leasing activity will be limited to insure that any activity will not adversely affect the minimum viable populations for management indicator species. Presently, the North Horn coal tract has been delineated and is suitable for leasing action.

APPENDIX D

ENERGY TRANSPORTATION AND UTILITY CORRIDOR EVALUATION

Introduction

There is an increased concern at the National, State, and local levels for meeting future right-of-way needs while protecting the environment which led to this corridor evaluation as a part of the Forest Planning Process. The concern is founded upon a real demand for transportation and utility facilities—especially pipelines, electric transmission lines, and railroads—to transport energy from resource areas to the centers of consumption. This concern has led to legislation authorizing the Forest Service and other Federal land management agencies to designate transportation and utility corridors on Federal land.

Selecting routes for linear facilities on Federal lands is complicated by mixed ownership land patterns, conflicting land uses, and environmental and engineering constraints. The Manti-LaSal National Forest has evaluated and selected corridors by application of existing Forest Service Manual and Regional Guide direction for transportation and utility corridor planning.

Objectives of Corridor Evaluation

Identify and designate existing or potential energy transportation rights-of-way as corridors that:

1. Comply with evaluation criteria for determination of corridor suitability; and
2. Are desirable for retention, but not capable of further widening; and
3. Are desirable to retain and have widening potential for future uses.

Evaluation Criteria

Criteria considered in determining suitability of the inventoried rights-of-way for designation as corridors are as follows:

1. Routes are compatible with Federal, State, and local land use plans and ordinances.
2. Environmental impacts are acceptable or mitigable for;
 - a. Natural resources, including soil, water, fish, wildlife, vegetation, cultural resources, and visual quality.
 - b. Wetlands, flood plains, riparian areas, and other similar areas protected by law.
 - c. Threatened or endangered species or their habitats as protected by law.

3. Few, if any, physical effects and constraints on corridor placement or rights-of-way placed therein would exist due to geological landform instability.
4. Economic and energy efficiency is achieved by selecting a right-of-way within an existing corridor, before establishing a new or relocated corridor. Selection is based on considering costs of construction, operation, maintenance and cost to the environment of each location. This should lead to maximum acceptable use of existing transmission lines, pipelines, and transportation routes.
5. Potential health and safety hazards to National Forest users and the general public, resulting from facilities or activities within the right-of-way corridors, could be mitigated and/or minimized.
6. Existing and potential future facilities within the right-of-way would be technically compatible.
7. Reasonable mitigation would prevent unacceptable social and economic impacts to National Forest land users, adjacent landowners, and other groups or individuals.

General Assumptions

- The concerned counties and communities would support the Manti-LaSal National Forest corridor designations. Such counties and communities might not agree on corridor widths as specified on National Forest System lands and might, through negotiation and applicable authorizing actions, set different widths on county property, or within community boundaries.
- The State Department of Transportation and/or the Federal Highway Administration would approve of highway right-of-way encroachments proposed by those authorized to conduct the project.
- Most of the Forest Development Roads would be part of Avoidance or Exclusion Area designations.
- Where applicable, Manti-LaSal National Forest corridor designations would be in harmony with such designations on adjacent Bureau of Land Management (BLM) land.
- Energy transportation proposals and applications for locations outside of corridors (within avoidance areas) would be subject to possible denial, if mitigation measures could not provide for adequate protection of sensitive/critical resource values.
- Proposals and applications for locations within exclusion areas would be denied.
- Proposals and applications for locations within avoidance or unclassified areas would be evaluated on a case-by-case basis. Approval of proposals/applications with adequate mitigations may be possible from such evaluations.

Management Directions

General - Location which will be considered for designation as corridors are where existing rights-of-way for transmission lines over 66 KV, oil and gas or coal slurry pipelines 10 inches or larger, or combinations thereof, pass into or through National Forest System lands within an identifiable strip of land, and where the probability exists that other lines may be located within this strip. Inclusion of lower rated transmission lines or smaller pipelines within designated corridors would be permitted.

Before new corridors or widening of existing corridors are approved, consideration will be given to wheeling or multiple circuiting of transmission lines; and increasing pipeline capacity by addition of compressors or looping, or utilizing existing highway transportation rights-of-way. Federal, State, and Interstate Highway routes are considered as potential corridors for energy transportation facilities.

Specific - Generally where the purpose of the transportation, transmission, or pipeline route is to accommodate or service a particular end use on the Forest, the route followed is not considered as a potential corridor. Where existing rights-of-way pass into or through National Forest System lands, on an identifiable strip of land, and where the probability exists that other energy transportation systems may be located within the strip, it is considered for designation as a corridor.

Based on the most current planning information from utility and power administrations, the Manti-LaSalle National Forest has directed planning for future utility rights-of-way and associated corridors by:

1. Designating

- a. Corridors - These are linear strips of land which have ecological, technical, economic, social, or similar advantages over other areas for the present or future location of energy transportation or utility rights-of-way within their boundaries.
- b. Windows - Critical segments of terrain through which rights-of-way could pass in traversing from points of origin to destination.
- c. Rights-of-Way - Land authorized to be used or occupied for the construction, operation, maintenance, and the terminus of a project facility passing over, upon, under, or through such land.

2. Identifying constrained areas where future utility rights-of-way will be discouraged or denied.

- a. Avoidance Areas - Areas that pose particular environmental impacts which would be difficult or impossible to mitigate; or areas that have characteristics which impose unusual engineering constraints. Applications for linear rights-of-way within avoidance areas would be processed by the Forest if, after project evaluation, it was determined that proposed mitigation measures would meet the Standards and Guidelines for the various resources within the areas.
- b. Exclusion Areas - Areas where linear facilities would not be legally permitted to cross. Applications for linear rights-of-way within exclusion areas would not be processed, due to the statutory prohibitions applicable to the area in question.

3. Identifying Unclassified Areas

- a. Unclassified Area - An area where potential environmental impacts have not been qualified or quantified. Linear facilities could pass through the area if environmental evaluation establishes adequate mitigation measures.

Process

The process for applying the Service-wide and Regional direction for energy transportation and utility corridor planning are to (listed in a planning sequence):

1. Inventory and field check existing pipelines, electric transmission lines, and major transportation routes which are located on the Forest; (Transportation routes are inventoried as potential corridors for electrical transmission and pipeline facilities, not for expansion of or addition to the State/Interstate Road/Highway System).
2. Identify criteria which will be used to evaluate potential corridors;
3. Analyze suitability of routes or areas to handle new or additional facilities and the suitability of the routes or areas for overhead vs. underground vs. surface linear right-of-way facilities;
4. Evaluate and designate areas suitable for corridors on the Manti-LaSal National Forest within the land management planning process;
5. Consolidate right-of-way alignments into designated corridors to avoid the proliferation of separate linear rights-of-way.
6. Identification/evaluation of land areas where facilities may not or will not be placed, by classifying the areas as avoidance areas or exclusion areas.
7. Combination of the above to; (a) identify, evaluate, and designate important right-of-way areas; and (b) identify, evaluate, and designate areas exhibiting important natural, cultural, and social values.

Inventory

The following is a descriptive inventory of rights-of-way, windows, exclusion areas, and avoidance areas. They are shown on the Energy Transportation and Utility Corridor Maps, Appendix F.

Existing Rights-of-Way

Electrical transmission lines, gas pipelines, and Federal, State and Interstate Highway rights-of-way currently existing on the Manti-LaSal National Forest that meet standards for potential corridor designation are displayed in Tables D-1 and D-2 respectively. (No rights-of-way exist on the Forest for railroads).

Planning Windows

An inventory of the Forest indicates there are no areas that qualify as planning windows.

Exclusion Areas

The following areas have been identified as exclusion areas:

1. Research Natural Areas
 - Elk Knolls
 - Nelson Mountain (Proposed)
 - Mount Peale (Proposed)
 - Cliff Dwellers Pasture (Proposed)
2. Great Basin Experimental Range
3. Scenic, Wilderness, and Recreation Areas
 - Dark Canyon Wilderness Area
 - Straight Canyon & Joe's Valley Recreation Area
 - Ferron Reservoir Recreation Area
 - Huntington Canyon Recreation Area
 - Hammond Canyon Archeological and Scenic Area

TABLE D-1

EXISTING ELECTRICAL AND GAS TRANSMISSION LINES

Name	Location Beginning-Ending	Size	R/W Width (Feet)	Length (Miles)	Acres
a. Huntington-Mona UP&L	Begins at the Huntington Power Plant west of Huntington and ends at Mona Station near Nephi, Utah. Crosses the Manti Division between Huntington and Fairview, Utah. Crosses the Sampitch Division in Chalk Creek.	345-KV	120	18.0 miles	212
b. Thistle-Mona Desert Generation and Transmission	Crosses the Manti Division near Thistle, Utah.	345-KV	150	0.6 miles	10
c. Rattlesnake Paradox	Crosses the Moab Ranger District between old and new LaSal, Utah.	46-KV	40	5.7 miles	27
d. Price-Provo Natural Gas Line	Crosses Manti Division between Clear Creek and Indianola Communities.	18/20 inch	60	14.4 miles	112

TABLE D-2

EXISTING FEDERAL, STATE, AND INTERSTATE HIGHWAYS

Name	Location	R/W Width (Feet)	Length (Miles)	Acres
a. U.S. Highway 191	Crosses Monticello Ranger District between Monticello and Blanding at Devils Canyon.	132	0.6	10
b. State Highway U-29	Crosses Manti Division via Straight-Seeley and Ephraim Canyons	100/200	37.0	654
c. State Highway U-31	Crosses Manti Division via Huntington and Fairview (Cottonwood) Canyon.	132	33.4	590
d. State Highway U-46/C-90	Crosses Moab District between new and old LaSal.	132	2.2	35
e. State Highway U-96	Begins at Scofield and joins U-31 at Fairview Summit.	175	12.9	275

Avoidance Areas

The geographical areas identified as avoidance areas are as follows:

1. West slope of the Manti Division (Indianola to Mayfield front) owing to slope instability.
2. Cedar Knoll of the Manti Division, owing to slope instability.
3. Upper Fish Creek owing to municipal water supply, National Recreation Trail, and Semiprimitive Recreation Management Unit Requirements.
4. Candland Mountain, owing to National Recreation Trail and Semiprimitive Recreation Management Unit Requirements.
5. Grassy Flat-Mary's Lake Bench owing to Semiprimitive Recreation Management Unit Requirements.
6. Little Bear area, owing to Semiprimitive Recreation Management Unit Requirements and municipal watersheds.
7. FL-566 watershed areas, owing to land instability with sensitive and fragile soils.
8. Manti Division east escarpment, owing to raptor nesting habitat.
9. West slope of San Pitch Division, owing to slope instability.
10. LaSal Peaks, owing to being a part of the National Parks watershed.
11. Sinbad-Carpenter Ridge, owing to high scenic values.

12. Blue Mountain, owing to municipal watersheds being a part of National Park viewsheds, and recreation values.
13. Arch and Texas Canyons, owing to high scenic values, and archeologic values.
14. The south-central part of the Monticello Ranger District, because of the generally high-site density (archeological values).
15. Clay Bank-White Knoll area, owing to slope instability.
16. Flat Canyon Recreation Area.

Unclassified Areas

These unclassified areas are National Forest System lands that are not identified as part of the potential corridors and/or exclusion and avoidance areas.

Evaluation

Each right-of-way route (the right-of-way and terrain immediately adjacent to the right-of-way window and avoidance area) was evaluated by the seven criteria to determine the effect of corridor designation and eventual right-of-way use. This analysis is shown on Tables D-3 through D-4.

TABLE D-3

EVALUATION PROCESS

Rights-of-Way (Electrical Transmission Lines and Gas Pipelines)

Evaluation Criteria	Huntington-Mona 345 KV Transmission Line	Thistle-Mona 354 KV Transmission Line	Rattlesnake-Paradox 69 KV Transmission Line	Price-Provo 18/20 Inch Gas Pipeline
1. Compatible with Federal, State, and Local Land Use/Management Plans	No Conflict	No Conflict	No Conflict	No Conflict
2. Environmental Impacts Natural Resources				
a. Soils/Vegetation	a. Soils/Vegetation. Shallow soils; would be difficult to revegetate (applies to eastern slope). Moderately high erosion potential.	Soils/Vegetation. Low soil moisture. Clay sub-soils could cause revegetation problems.	a. Soils/Vegetation. Shallow, rocky soils exist to the southeast of the route.	a. Soils/Vegetation. High erosion potential on west slopes; difficult to revegetate disturbed sites.
b. Water Quality				
c. Fish/Wildlife				
d. Cultural			d. Cultural. Historic values exist along portions of this route.	
e. Visuals/Recreation	e. Visuals/Recreation. Near Upper Joes Valley and Indian Creek Campground. Highly visible from U.S. 89 in Sanpete Valley.	e. Visuals/Recreation. Highly visible from U.S. 89 in Thistle Canyon.	e. Visuals/Recreation. Highly visible from SR 46.	e. Visuals/Recreation. Highly visible from portions of Skyline Drive and at Indianola.
Wetlands, Flood Plains, Riparian Areas	No Major Conflicts	No Major Conflicts	No Major Conflicts	Wetlands in Upper Gooseberry.
Threatened or Endangered Species and Habitat	Known eagle habitat.	Known habitat for <i>Astragalus desereticus</i> .	No Known Conflicts	Known eagle habitat. Potential habitat for <i>Astragalus desereticus</i> along north end.

NOTE:

A "no entry" for a particular row indicates that no major effects exist or would be anticipated.

TABLE D-3 (Continued)

Evaluation Criteria	Huntington-Mona 345 KV Transmission Line	Thistle-Mona 354 KV Transmission Line	Rattlesnake-Paradox 69 KV Transmission Line	Price-Provo 18/20 Inch Gas Pipeline
3. Geological Landform Restrictions	Slumps and slides on western slope. Steep topography along most of route.	Some steep terrain east of the route.	No Major Problems	Steep side slopes show instability and movement along west half of route. Steep ridge lines on west slope.
4. Economic and energy efficiency of constructing, operating, and maintaining ROW and costs of modifying or relocating existing facilities in a proposed corridor.	High construction costs along most of route. Difficult access for maintenance.	No Major Problems	No Major Problems	Identified land stability problems are presently causing high maintenance costs and would require high first construction costs for new facilities.
5. Potential health and safety hazards to National Forest users and general public.	No Major Problems	No Major Problems	No Major Problems	No Major Problems
6. New and existing uses would be technologically compatible.	Above listed natural and physical restrictions could limit the compatibility of new uses with existing uses, except for upgrading proposals.	No Major Problems	No Major Problems	Above listed natural and physical restrictions could limit the capability of new and existing uses.
7. Socio-economic effects to adjacent landowners and other groups or individuals.	Expansion of ROW could adversely affect recreation user perception of the Upper Joes Valley Recreation area.	Decision to expand ROW width would affect adjacent private landowners.	Decision to expand ROW width would affect adjacent private landowners.	Decision to expand ROW width would affect private landowners, since ROW passes near to or through some private land.

TABLE D-4

EVALUATION PROCESS
(Roads and Highways)

Evaluation Criteria	U.S. Highway 191	State Highway U-29	State Highway U-31	State Highway U-46/C-90	State Highway U-96
1. Compatible with Federal State, and local Land Use/Management Plans.	Approval and coordination would be required by State Department of Transportation (DOT) during planning, design, construction, and maintenance work for utilities and other energy transportation facilities within the road ROW. Forest Service would also have to review and approve use.	Approval and coordination would be required by State Department of Transportation (DOT) during planning, design, construction, and maintenance work for utilities and other energy transportation facilities within the road ROW. Forest Service would also have to review and approve use. Proposals outside ROW would conflict with exclusion and avoidance area designations for the area being crossed (80 to 90 percent of route is within exclusion and avoidance areas).	Approval and coordination would be required by State Department of Transportation (DOT) during planning, design, construction, and maintenance work for utilities and other energy transportation facilities within the road ROW. Forest Service would also have to review and approve use. Proposals outside ROW would conflict with exclusion and avoidance area designations for the area being crossed (80 to 90 percent of route is within exclusion and avoidance areas).	Approval and coordination would be required by State Department of Transportation (DOT) during planning, design, construction, and maintenance work for utilities and other energy transportation facilities within the road ROW. Forest Service would also have to review and approve use.	Approval and coordination would be required by State Department of Transportation (DOT) during planning, design, construction, and maintenance work for utilities and other energy transportation facilities within the road ROW. Forest Service would also have to review and approve use. Proposals outside ROW would conflict with exclusion and avoidance area designations for the area being crossed (80 to 90 percent of route is within exclusion and avoidance areas).

TABLE D-4 (Continued)

Evaluation Criteria	U.S. Highway 191	State Highway U-29	State Highway U-31	State Highway U-46/C-90	State Highway U-96
			Utility proposal would conflict with Huntington Canyon Recreation Plan, which emphasizes protection of visuals and recreation values adjacent to the highway.		
2. Environmental Impacts					
Natural Resources					
a. Soils/Vegetation		a. Soils/Vegetation. Shallow soils; would be difficult to revegetate (applies to total road length). Moderately high erosion potential.	a. Soils/Vegetation. Shallow soils on west slopes. Moderately high erosion potential. Difficult to revegetate disturbed sites.		a. Soils/Vegetation. Shallow soils over most of route. Moderate erosion potential. Difficult to revegetate disturbed sites.
b. Water Quality		b. Water Quality. Eastern quarter of route parallels Straight Canyon watershed area. Western quarter of route within Ephraim Watershed.	b. Water Quality. Two-thirds of route within sensitive watersheds, i.e., Huntington and Fairview Canyons.		b. Water Quality. Within a watershed area tributary to Scofield Reservoir.
c. Fish/Wildlife		c. Fish/Wildlife. Parallels trout fishery for 25 percent of length.	c. Fish/Wildlife. Parallels trout fishery for 25 percent of length.		c. Fish/Wildlife. Parallels trout fishery for 25 percent of length.
d. Cultural					
e. Visuals/Recreation					
NOTE:					
A "no entry" for a particular ROW indicates that no major effects exist or would be anticipated.					

TABLE D-4 (Continued)

Evaluation Criteria	U.S. Highway 191	State Highway U-29	State Highway U-31	State Highway U-46/C-90	State Highway U-96
	d. Visuals/Recreation Major travel route to the Southeastern Utah National Parks and Monuments. Crosses near Devils Canyon Campground.	d. Visuals/Recreation Crosses through Straight Canyon and Joes Valley Recreation Area. High scenic values along total length of route. Crosses over Skyline Drive Road.	d. Visuals/Recreation Crosses through Huntington Canyon Recreation Area. High scenic values along total length of route. Crosses over Skyline Drive Road.		d. Visuals/Recreation Crosses over Skyline Drive Road.
Wetlands, Flood Plains, and Riparian Areas	No Major Conflicts	Flood plains and riparian areas along 25 percent of route length.	Flood plains and riparian areas along 50 percent of route length.	No Major Conflicts	Flood plains and riparian areas along 25 percent of route length.
Threatened or Endangered Species and Habitat	No known conflicts with T&E animals.	No known conflicts with T&E animals.	No known conflicts with T&E animals.	No known conflicts with T&E animals.	No known conflicts with T&E animals.
3. Geological Landform Restrictions	Heavy rock cut within Forest.	Narrow, steep walled restrictive canyon on east side. Unstable slopes west of Joes Valley Reservoir.	Unstable slopes along western portion of route. Narrow canyon bottom along eastern portion of route.	No Major Problems	Unstable landforms along western half of route. Narrow canyon with steep side slopes along eastern half of route.
4. Economic and energy efficiency of constructing, operating, and maintaining ROW and costs of modifying or relocating existing facilities in a proposed corridor.	No Major Problems	High construction costs to mitigate environmental resource values.	High construction costs to mitigate environmental resource values.	No Major Problems	High construction costs to mitigate environmental resource values.

TABLE D-4 (Continued)

Evaluation Criteria	U.S. Highway 191	State Highway U-29	State Highway U-31	State Highway U-46/C-90	State Highway U-96
5. Potential health and safety hazards to National Forest users and general public.	No Major Problems	No Major Problems	No Major Problems	No Major Problems	No Major Problems
6. New and existing uses would be technologically compatible.	No Major Problems	Above listed natural and physical restrictions could limit the compatibility of new uses with the existing road ROW.	Above listed natural and physical restrictions could limit the compatibility of new uses with the existing road ROW.	No Major Problems	Above listed natural and physical restrictions could limit the compatibility of new uses with the existing road ROW.
7. Socio-economic effects to adjacent landowners and other groups or individuals.	Decision to expand ROW width would affect adjacent private landowners.	Expansion of ROW could adversely affect recreation user perception of the Upper Joes Valley Recreation Area.	Expansion of ROW could adversely affect recreation user perception of the Upper Joes Valley Recreation Area.	Decision to expand ROW width would affect adjacent private landowners.	<p>Eastern portion would traverse through the Skyline Mine development. Expansion of ROW could adversely affect Upper Huntington Canyon recreation use.</p> <p>Decision to expand ROW width would affect adjacent private landowners.</p>

Recommendations

Corridors

The narratives on corridor designations, including widths and type of rights-of-way, address the recommended designation for existing electrical transmission line and gas pipeline routes, and State Road/Highway routes.

ELECTRICAL TRANSMISSION LINE AND GAS PIPELINE ROUTES

Huntington-Mona 345 KV Transmission Line - Support corridor designation.

Suitable for overhead and underground electrical transmission and underground pipeline facilities.

Upgrading, upgrading, or replacing existing facilities, or addition of new facilities would only be permitted within the existing ROW width.

Thistle-Mona 345 KV Transmission Line - Support corridor designation.

Suitable for overhead and underground electrical transmission and underground pipeline facilities.

The width of the corridor on National Forest System lands to the east would be subject to visual and slope restrictions, and would vary from 200 to 500 feet, inclusive of the existing 150-foot transmission line right-of-way.

Rattlesnake-Paradox 69 KV Transmission Line - Support corridor designation.

Suitable for overhead and underground electrical transmission and underground pipeline facilities.

Expansion or widening would be limited to 400 feet, inclusive of the existing 40-foot transmission line right-of-way and 132-foot State Highway U-46/C-90 right-of-way.

Price-Provo 18/20-Inch Gas Pipeline - Support corridor designation.

Suitable for underground pipeline facilities.

Expansion or widening would vary from 200 to 500 feet, inclusive of the existing 50-foot pipeline right-of-way.

ROADS AND HIGHWAYS

U.S. Highway 191 - The Manti-LaSal National Forest highway portion is located within the Monticello Unit - LaSal Division, an Unclassified Area. Proposals for overhead, underground, and over-the-surface energy facilities (within or contiguous to this right-of-way) would be discouraged due to the proximity of an existing north/south utility right-of-way located to the east of National Forest System lands.

State Highway U-29 - The Manti-LaSal National Forest road portions are located within the Joe's Valley Recreation Exclusion Area and Clay Bank-White Knoll and West Slope - Manti Division Avoidance Areas.

Proposals for overhead, underground, and over-the-surface facilities within or contiguous to this right-of-way would conflict with the direction for the important recreation and visual resources located in the adjacent exclusion area. The proposals would also adversely affect land stability within the avoidance areas. Energy transportation proposals along and/or contiguous to the road portions would be denied.

State Highway U-31 - The Manti-LaSal National Forest road portions are located in the Huntington Canyon Exclusion Area and the West Slope - Manti Division Avoidance Area.

The above statement for U-29 would also apply to this road location.

State Highway U-46/C-90 - Refer to previous statement on the Rattlesnake-Paradox 69 KV transmission line corridor designation.

State Highway U-96 - The Manti-LaSal National Forest road portions are located within the Flat Canyon Recreation and West Slope - Manti Division Avoidance Areas.

The above statement for U-29 would also apply to this road location.

Avoidance Areas

Application of the 7 Evaluation Criteria to the 16 areas listed above led to the following general statements concerning corridor designations in avoidance areas:

Most (and in some cases all) locations within these areas would conflict with or not meet the goals and objectives for any one criterion; and reasonable mitigation would (for the most part) not prevent unacceptable impacts to natural, physical, or social resources and values located within and adjacent to the areas.

NOTE: The Manti Division has State Highway and Roads within avoidance areas that meet the "Management Requirements" for potential energy transportation and utility corridor designation. The above statements for avoidance areas would also apply to these highway/road locations.

With the exception of the Mountain Fuel Price to Provo gas pipeline, there are no other linear rights-of-way within the avoidance areas that meet the established Management Requirements.

APPENDIX E

GLOSSARY

ACCELERATED EROSION - Erosion much more rapid than normal or natural erosion, primarily as a result of the influence of the activities of man or in some cases, of animals or natural catastrophes that expose soil surfaces, for example, fire.

ACRE EQUIVALENT - The area affected by a wildlife improvement, i.e., a water development creates habitat for big game in the 640 acres surrounding the development.

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).

ACTIVITY - The work processes or management practices that are conducted to produce, enhance, or maintain outputs or achieve administrative and environmental quality objectives (FSM 1309, Management Information Handbook). An activity can generate multiple outputs.

ACTIVITY FUELS - Woody debris generated from any activity on the Forest such as firewood gathering, precommercial thinning, timber harvesting, and road construction, which increases fire potential.

ACTUAL USE - The actual occupancy of land and utilization of forage by livestock. Report grazing use of range actually made. Includes grazing under both grazing permits and livestock use permits.

AFFECTED ENVIRONMENT - The biological, physical, and social environment usually under the administration of one line officer, such as District Ranger or Forest Supervisor, that would be affected by an activity or action.

AIRSHED - A geographic area that, because of topography, meteorology, and climate, shares the same air. As applied to the National Forest by the Clean Air Act, amended August 1977, the term covers all wilderness areas larger than 5,000 acres that were in existence as of August 1977.

ALLOWABLE SALE QUANTITY (ASQ) - 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."

ANALYSIS OF THE MANAGEMENT SITUATION (AMS) - 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.

ANIMAL UNIT - A measurement of livestock numbers based on the equivalent of a mature cow (approximately 1,000 pounds live weight).

ANIMAL UNIT MONTH (ADM) - The amount of forage required by an animal unit for 1 month.

APPROPRIATE SUPPRESSION RESPONSE - The kind, amount, and timing of suppression action on a wildfire which most efficiently meets fire management direction under current and expected burning conditions. It may range in objective from prompt control to confinement.

AQUATIC ECOSYSTEMS - The physical environment of or pertaining to water—stream channel, lake or pond bed, wetland, water itself—and 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 resource elements to a substantial extent, and maintenance is not normally determined by the activities of any one element. They provide service to large land areas and usually connect with public highways or areas, or other Forest arterial roads to form an integrated network of primary travel routes. The location and standard 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 for long-term land and resource management purposes and constant service.

AVAILABLE FOREST LAND - Land which has not been legislatively withdrawn or administratively withdrawn by the Secretary of Agriculture or Forest Service Chief from timber production.

BACKGROUND - The distant part of a landscape, picture, etc.; surroundings, especially those behind something and providing harmony or contrast; surrounding area or surface. Area located from 3 to 5 miles to infinity from the viewer.

BASAL AREA - The area of the cross-section of a tree stem near the base, generally at breast height and inclusive of bark.

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 for any decade is not greater than the long-term sustained yield capacity. (This definition expresses the principle of nondeclining flow.)

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 - The total value of an output or other effect.

BENEFIT/COST RATIO (BCR) - The total discounted benefits of an activity divided by the total discounted costs.

BEST AVAILABLE CONTROL TECHNOLOGY (BACT) - An emission limitation based on the maximum degree of reduction of each pollutant emitted from, or which results from any emitting installation, taking into account energy, environmental economic impacts, and other costs, and achievable for such installation through application of production processes and available methods, systems, and techniques.

BEST MANAGEMENT PRACTICES (BMP) - A practice or combination of practices that are the most effective and practical (including technological, economical, and institutional) consideration level compatible with water quality goals.

BIG-GAME WINTER RANGE - The area available to and used by big game through the winter season.

BIOLOGICAL CONDITION INDEX (BCI) - An expression of actual condition of a stream compared to its natural potential. It is measured by comparing actual chemical and physical characteristics of a stream with its potential.

BIOLOGICAL POTENTIAL - The possible output of a given resource limited only by its inherent physical and biological characteristics.

BOARD FEET - The amount of wood equivalent to a piece of wood one foot by one foot by one inch thick.

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.

CABLE LOGGING - A method for transporting logs from stumps to collecting points which utilize a cable system as the main device for moving them.

CAPABLE LANDS - Those portions of the Forest that have an inherent ability to support trees for timber harvest and produce at least 20 cubic feet/acre/year of wood fiber.

CARRYING CAPACITY - The number of organisms of a given species and quality that can survive in, without causing deterioration of, a given ecosystem through the least favorable environmental conditions that occur within a stated interval of time.

CAVITY NESTER - Wildlife species that nest in cavities (hollows excavated in snags by birds).

CHAINING - The dragging of an anchor chain between two tractors for the purpose of uprooting trees.

CLEARCUTTING - The cutting method that describes the silviculture system in which the old crop is cleared over a considerable area at one time. Regeneration then occurs from (a) natural seeding from adjacent stands, (b) seed contained in the slash or logging debris, (c) advance growth, or (d) planting or direct seeding. An even-aged forest usually results.

CLEARING INDEX - A determining factor in granting permission for certain classes of open burning. It is directly related to atmospheric stability and indicates periods of increased potential for pollutant increase.

CLIMAX - The culminating stage in plant succession for a given site where the vegetation has reached a highly stable condition.

CLOSED ROAD - Forest road on which all motorized vehicle use is prohibited, except by permit, under the authority of 36 CFR 261.

CODE OF FEDERAL REGULATIONS (CFR) - Document published by the Office of the Federal Register, National Archives and Records Service, that codify documents regulating application and administration of laws enacted by the Congress of the United States.

COLLECTOR ROADS - Roads constructed to serve two or more elements but which do not fit into the other two 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 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 service.

COMMERCIAL THINNING - Reduction in tree density by designating select trees for removal through commercial sales for poles, posts, fuelwood, et. al.

CONFINEMENT - To restrict the fire within determined boundaries established either prior to the fire, during the fire, or in an escaped fire situation analysis. The normal tactic is surveillance only.

CONIFER - Cone-bearing trees, mostly evergreen, including the pine, spruce, fir, etc.

CONSERVATION POOL - The minimum amount of water in a reservoir which will provide sufficient habitat to maintain fish over the winter period.

CONSUMPTIVE USE - A use of resources that reduces the supply, such as logging and mining. See also "Nonconsumptive use."

CONSTANT SERVICE FACILITY - A long-term facility developed and operated for continuous or annual recurrent service. (FSM 7705.31)

CONSTRAINT - A quantification of the minimum or maximum amount of an output or cost that could be produced or incurred in a given time period.

CONTAINMENT - To surround a fire, and any spot fires therefrom, with control line, as needed, which can reasonably be expected to check the fire's spread under prevailing and predicted conditions. The normal tactic is indirect attack and burn to human-made or natural barrier with little or no mop-up.

CONTROL - To complete the control line around a fire, any spot fires therefrom, and any interior islands to be saved, burn out any unburned area adjacent to the fire side of the control line, and cool down all hot spots that are immediate threats to the control line, until the line can reasonably be expected to hold under foreseeable conditions. The normal tactic is direct attack on the fire, if possible, and mop-up.

CORRIDOR - A linear strip of land identified for the present or future location of transportation or utility rights-of-way within its boundaries.

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 specified 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.

CUBIC FOOT - The amount of timber equivalent to a piece of wood one foot by one foot by one foot.

CULMINATION OF MEAN ANNUAL INCREMENT - The point where the mean annual growth increment (the basal area of a stand of trees divided by their age) ceases to increase prior to decline.

CULTURAL RESOURCE - The remains of sites, structures, or objects used by humans in the past—historical or archaeological.

CULTURAL UNIT - A unique archeologic evidence found on archeologic sites that represent a distinct period of time or cultural activity.

Diameter at breast height (DBH) - The diameter of a tree measured 4 feet 6 inches above the ground.

DECIDUOUS - Trees or shrubs that shed leaves annually.

DECISION CRITERIA - Essentially the rules or standards used to evaluate alternatives. They are measurements or indicators that are designed to assist a decisionmaker to identify a preferred choice from the array of possible alternatives.

DEER NUMBER - The actual number of deer, as determined by a count.

DEER YEAR - The amount of forage and habitat required by one deer for one year.

DEMAND - The quantity of goods or services called for at various prices, holding other factors constant.

DEPARTURE - The temporary deviation from the non-declining even-flow policy.

DESIGN CAPACITY - The maximum theoretical amount of use a developed recreation site was built to accommodate.

DESIGNATED CORRIDOR - A linear area of land with defined and recognized boundaries identified and designated by legal public notice.

DEVELOPED RECREATION - Recreation that requires facilities that, in turn, result in concentrated use of an area. Examples of recreation areas are campgrounds and ski areas; facilities in these areas might include roads, parking lots, picnic tables, toilets, drinking water, ski lifts, and buildings.

DEVELOPED RECREATION SITE - Relatively small, distinctly defined area where facilities are provided for concentrated public use; e.g., campgrounds, picnic areas, swimming areas.

DEWATERING - Removing most or all of the water from a stream channel; usually by a diversion for irrigation or power generation.

DISPERSED RECREATION - A general term referring to recreation use outside a developed recreation site; this includes activities such as scenic driving, hunting, backpacking, and recreation in primitive environments.

DISTANCE ZONE - Areas of landscape denoted by specified distances from the observer. Used as a frame of reference in which to discuss landscape characteristics or activities of man.

DIVERSITY - The distribution and abundance of different plant and animal communities and species within the area covered by a land and resource management plan. See also "Edge."

DIVERSITY INDEX (DAT) - A diversity index for macroinvertebrates which combines dominance (D) and number of taxa (T) (species).

DOUBLE CIRCUITTING - Doubling the capacity of an electrical transmission line.

EARLY SERAL VEGETATION - One of the first stages that occurs in vegetation community succession.

ECOLOGICAL TREND - The direction of change in vegetation condition or composition.

ECOSYSTEMS - An interacting system of organisms considered together with their environment; for example, marsh, watershed, and lake ecosystems.

EDGE - Where plant communities meet or where successional stages or vegetation conditions within the plant communities come together.

ELECTRONIC SITES - Areas designated for the operation of equipment which transmit and receive radio signals, excluding television aerials and antennas, for local pickup of programming and passive reflectors.

ELK NUMBER - The actual number of elk, as determined by a count.

ELK YEAR - The amount of forage and habitat required by one elk for one year.

EMERGING PUBLIC ISSUE - An expressed demand or impact on Forest Service resources or management created by the public.

ENDEMIC - Native or confined to a certain region; having a comparatively restricted distribution.

ENVIRONMENTAL ASSESSMENT (EA) - The concise public document required by the regulations for implementing the procedural requirements of NEPA (40 CFR 1508.9).

ESCAPED FIRE SITUATION ANALYSIS - A decision analysis using those factors influencing suppression of an escaped fire from which a plan of action will be developed. The analysis includes the development of alternative suppression strategies and the probable cost and damages associated with each.

EVEN-AGED MANAGEMENT - The application of a combination of actions that results 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 stands of varying ages (and, therefore, tree sizes) throughout the forest area. The difference in age between trees forming the main canopy level of a stand usually does not 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. Clearcut, shelterwood, or seed tree cutting methods produce even-aged stands.

EVEN-AGED SILVICULTURE - The combination of timber management actions that result in the creation of stands where trees of essentially the same age grow together.

EXISTING PUBLIC ISSUE - An expressed demand or impact on Forest Service resources or management created by the public.

EXPERIENCE LEVELS - The range of opportunities for satisfying basic recreation needs of people. A scale of five experience levels ranging from "primitive" to "urban" is planned for the National Forest System.

FACILITIES - Transportation planning, road management and operation, fleet equipment, and engineering services (for example, administrative buildings, water and sanitation systems, sanitary landfills, dams, bridges, and communication systems).

FAMILY UNIT - A developed site or picnic spot with table, fireplace, tent pad, and parking spot designed to handle a group of people.

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.

FIRE HAZARD - The fuel in which a fire will ignite and burn.

FIRE INTENSITY LEVEL - The severity of a given fire condition. Low intensity fire flame lengths are under 4 feet and high intensity fires average flame lengths over 4 feet.

FIRE MANAGEMENT - All activities required for protection of resources from fire and the use of fire to meet land management goals and objectives.

FIRE MANAGEMENT/EFFECTIVENESS INDEX (FMEI) - The index value measures effectiveness of annual fire management operational programs. It is a planning, attainment, analysis, and evaluation tool for both annual and long-term programs. Measured in dollars per thousand acres protected, the objective is to minimize the index value.

FORAGE - All browse and nonwoody plants that are available to wildlife for grazing or harvested for feeding.

FORB - Any herbaceous plant other than grass or grass-like plants.

FOREGROUND - The detailed landscape found within 0 to 1/4-1/2 mile from the observer.

FOREST DEVELOPMENT ROADS - Roads that are part of the Forest development transportation system which includes existing and planned roads as well as other special and terminal facilities designated as Forest development transportation facilities. (See arterial roads, collector roads, and local roads.)

FOREST RANGER - The official responsible for administering the National Forest System lands in a Forest Service administrative unit called the Ranger District, located on a National Forest. The Forest Ranger reports to the Forest Supervisor.

FOREST ROAD OR TRAIL - The term "Forest road or trail" means a road or trail 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 development of its resources. (Title 23 USC 101 as amended by the Surface Transportation Act of 1978.)

FOREST SERVICE HANDBOOK (FSH) - The Forest Service Handbooks complement the Forest Service Manual. They are the principal source of detailed instructions for performing specialized tasks and contain detailed procedures, standards, practices, and techniques used primarily by technicians and specialists.

FOREST SERVICE MANUAL (FSM) - The Forest Service Manual is the basic and ruling component of the directive system and the principal source of continuing instruction for the conduct of Forest Service programs and activities.

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 fuel breaks, manmade barriers.

FUEL LOADING - The volume of dead and down vegetative material, that may include logging slash, subject to burning. Measured in tons per acre.

FUEL TREATMENT - The rearrangement or disposal of natural or activity fuels to reduce the fire hazard. Fuels are defined as both living and dead vegetative materials consumable by fire.

FUELWOOD - Wood—round, split, or sawed, and generally otherwise refuse material—cut into short lengths for burning.

FUGITIVE DUST - Solid, airborne particulate matter emitted from any source other than through a stack.

FULL SERVICE MANAGEMENT - Refers to recreation management, operation, maintenance, and administrative activities are accomplished according to established standards and objectives.

GENERAL AQUATIC WILDLIFE SYSTEMS (GAWS) - Intermountain Region standard aquatic inventory system which encompasses the following elements: Stream and lake identification, stream survey, lake-reservoir survey, macroinvertebrates survey, valley bottomland stratification, computer data management, action programs.

GOAL - A concise statement that describes a desired condition to be achieved sometime in the future. 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.

GRAZING ALLOTMENT - See "Range Allotment."

GRAZING CAPACITY - The expected sustained annual production of forage that is suitable and available for livestock and/or wildlife can be grazed without inducing damage to vegetation, soils, and other related resources.

HABITAT - The place where a plant or animal naturally or normally lives or grows.

HABITAT CAPABILITY - The estimated ability of an area, given existing or predicted habitat conditions, to support a wildlife, fish or plant population. It is measured in terms of potential population numbers.

HABITAT CONDITION INDEX (HCI) - An indication of the condition of aquatic (stream) habitat based on the parameters of pool quantity, pool structure, stream bottom quality, streambank cover, and channel stability.

HIGHWAY - A Forest road under the jurisdiction of, and maintained by, a public authority and open to public travel. Designated as a Forest Highway, and meets the criteria of (1) jurisdiction, (2) providing a connecting link for the resources of the National Forests to other markets, and (3) serving other local needs such as schools, mail delivery, and commercial supply.

HUMAN RESOURCE UNIT (HRU) - A subunit of the larger SRU used for the same planning purposes, but focuses on a more site specific forest and district level.

INDICATOR SPECIES - A plant or animal species adapted to a particular kind of environment. Its presence is sufficient indication that specific habitat conditions are also present.

INSTREAM FLOWS - A prescribed level (or levels) of streamflow, usually expressed as a stipulation in a permit authorizing a dam or water diversion for the purpose of meeting National Forest System management objectives.

INTEGRATED PEST MANAGEMENT - A management strategy for suppression of forest pests which integrates silvicultural, mechanical, biological, and chemical suppression strategies which achieve greater efficiency and safety than the same strategies used alone.

INTERMEDIATE CUTTING - 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 SERVICE FACILITY - A facility developed and operated for periodic service and closed for more than one year between periods of use. (FSM 7705.31.)

IRRETRIEVABLE - Applies to losses of production, harvest, or commitment of renewable natural resources. For example, some or all of the timber production from an area is irretrievably lost during the time an area is used as a winter sports site. If the use is changed, timber production can be resumed. The production lost is irretrievable, but the action is not irreversible.

IRREVERSIBLE - Applies primarily to the use of nonrenewable resources, such as minerals or cultural resources, or to those factors that are renewable only over long time spans, such as soil productivity. Irreversible also includes loss of future options.

ISSUE - A point, matter, or question of public discussion or interest to be addressed or decided through the planning process.

KEY HABITAT - Key land areas used by wildlife for forage and reproduction.

LAND EXCHANGE - The conveyance of non-Federal land or interests in the United States in exchange for National Forest System land or interests in land.

LANDLINE - For Forest Plan purposes, National Forest property boundaries.

LATE SERAL VEGETATION - One of the last stages that occurs before climax in vegetation community succession.

LINEAR PROGRAMMING - A mathematical method used to determine the cost-effective allocation 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., $y = x + bx$.

LOCAL ROADS - Roads constructed and maintained for, and frequented by, the activities of a given resource element. Some use 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 are usually determined by the requirements of a specific resource activity rather than by travel efficiency. Forest local roads may be developed and operated for either constant or intermittent service, depending on land use and resource management objectives for the area served by the facility.

LONG-TERM SUSTAINED YIELD (LTSY) - In timber, the highest uniform wood yield from lands being managed for timber production that may be sustained under a specified management intensity consistent with multiple-use objectives.

MACROINVERTEBRATES - An aquatic insect, without a backbone, that can be seen with the naked eye in the advanced stages of development. The composition of the community is an indication of the quality of the aquatic habitat and reflects the condition of the entire drainage.

MAINTENANCE LEVEL - A formally established set of objectives which describes the conditions necessary to achieve the planned operation of a road. (FSH 7709.15.)

MANAGEMENT ACTION - Any activity undertaken as part of the administration of the Forest.

MANAGEMENT UNIT - An area of land with similar management goals and a common management prescription.

MANAGEMENT CONCERN - A concern, problem, or a condition which constrains the range of management practices identified by the Forest Service in the planning process.

MANAGEMENT REQUIREMENTS - A statement of multiple-use goals, other goals and objectives, and the associated management prescriptions, with Standards and Guidelines for attaining them.

MANAGEMENT INTENSITY - A management practice or combination of management practices and associated costs designed to obtain different levels of goods and services.

MANAGEMENT INDICATOR SPECIES (MIS) - A species selected because its population changes indicate effects of management activities on the plant and animal community. A species whose condition can be used to assess the impacts of management actions on a particular area.

MANAGEMENT OPPORTUNITY - A statement of general actions, measures, or treatments that address a public issue or management concern in a favorable way.

MANAGEMENT PRACTICE - A specific activity, measure, course of action, or treatment.

MANAGEMENT PRESCRIPTION - Management practices and intensity selected and scheduled for application on a specific area to attain multiple use and other goals and objectives.

MANAGEMENT STANDARDS AND GUIDELINES - See Standards and Guidelines.

MATURE TIMBER - Trees that have attained full development, particularly height, and are in full seed production.

MANAGEMENT SYSTEM - The laws, regulations, and traditions within which Forest Service management decisions are made and implemented.

MARKET-VALUE OUTPUTS - Goods and services valued in terms of what people are willing to pay for them, as evidenced by market transactions.

MAXIMUM MODIFICATION - See "Visual Quality Objective (VQO)".

MIDDLEGROUND - The space between the foreground and the background in a picture or landscape. The area located from 1/4-1/2 to 3 to 5 miles from the viewer.

MINIMUM VIABLE POPULATION - In wildlife, it is the number of animals of a given species that are needed to maintain that species in an area.

MINERALS, COMMON VARIETY (SALEABLE) - Deposits which, although they may have value for use in trade, manufacture, the sciences, or in the mechanical or ornamental arts, do not possess a distinct, special economic value for such use over and above the normal uses of the general sum of such deposits. May include sand, stone, gravel, pumice, cinders, pumice (except that occurring in pieces over 2 inches on a side), clay, and petrified wood.

MINERAL ENTRY WITHDRAWAL - The exclusion of the right of exclusive possession by the locator, of locatable mineral deposits and mineral development work on areas required for administrative sites by the Forest Service and other areas highly valued by the public. Public lands withdrawn from entry under the general mining laws and/or the mineral leasing laws.

MINERALS, LEASABLE - Coal, oil, gas, phosphate, sodium, potassium, oil shale, sulphur, and geothermal steam.

MINERALS, LOCATABLE - Those hardrock minerals which are mined and processed for the recovery of metals. May include certain nonmetallic minerals and uncommon varieties of mineral materials such as valuable and distinctive deposits of limestone or silica. May include any solid, natural inorganic substance occurring in the crust of the earth, except for the common varieties of mineral materials and leasable minerals.

MITIGATION - Actions to avoid, minimize, reduce, eliminate, or rectify the impact of a management practice.

MODIFICATION - See "Visual Quality Objective (VQO)".

MORTALITY - In trees, it relates to lost wood fiber and includes those commercial species, standing or down, that have died during a specified period, and were not cull trees at the time of death.

MOUNTAIN PINE BEETLE - A tiny black insect, ranging in size from 1/8 to 3/4 inch, that bores its way into the tree's cambium and cuts off its supply of food, thus killing the tree.

MULTIPLE USE - The management of all the various renewable surface resources of the National Forest System so that they are utilized in the combination that will best meet the needs of the American people; making the most judicious use of the land for some or all of these resources or related services over areas large enough to provide sufficient latitude for periodic adjustments in use to conform to changing needs and conditions; that some lands will be used for less than all of the resources; and harmonious and coordinated management of the various resources, each with the other, without impairment of the productivity of the land with consideration being given to the relative values of the various resources, and not necessarily the combination that will give the greatest dollar return or the greatest unit output.

NATIONAL FOREST LAND AND RESOURCE MANAGEMENT PLAN - A Plan developed to meet the requirements of the Forest and Rangeland Renewable Resources Planning Act of 1974, as amended. It guides all natural resource management activities and establishes management standards and guidelines for the National Forest System lands of a given National Forest.

NATIONAL FOREST LANDSCAPE MANAGEMENT SYSTEM - The art and science of planning and administering the use of Forest lands in such ways that the visual effects maintain or upgrade man's psychological welfare. It is the planning and design of the visual aspects of multiple-use land management.

NATIONAL FOREST MANAGEMENT ACT (NFMA) - A law passed in 1976 as an amendment to the Forest and Rangeland Renewable Resources Planning Act requiring the preparation of Regional Guides and Forest Plans and the preparation of regulations to guide that development.

NATIONAL FOREST SYSTEM (NFS) LANDS - National Forests, National Grasslands, or purchase units, and other lands under the management of the Forest Service, including experimental areas and Bankhead-Jones Title III lands.

NATIONAL RECREATION TRAILS - Trails designated by the Secretary of the Interior or the Secretary of Agriculture as part of the National system of trails authorized by the National Trails System Act. National Recreation Trails provide a variety of outdoor recreation uses in or reasonably accessible to urban areas.

NATIONAL REGISTER OF HISTORIC PLACES - A listing (maintained by the U.S. National Park Service) of areas which have been designated as being of historical significance. The Register includes places of local and state significance as well as those of value to the Nation.

NATIONAL WILDERNESS PRESERVATION SYSTEM - All lands covered by the Wilderness Act and subsequent wilderness designations, irrespective of the department having jurisdiction.

NET PUBLIC BENEFITS - An expression used to signify the overall long-term value to the nation of all outputs and positive effects (benefits) less all associated inputs and negative effects (costs) whether they can be quantitative values or not. Net public benefits are measured by both quantitative and qualitative criteria rather than a single measure or index. The maximization of net public benefits to be derived from management of units of the National Forest System is consistent with the principles of multiple use and sustained yield.

NETWORK - A group of individuals that form a system for maintaining or activating their interests—including both informal and formal groups.

NON-CONSUMPTIVE USE - A use of a resource that does not reduce the existing inventory or supply.

NON-DECLINING EVEN-FLOW POLICY - A level of timber production that schedules sale and harvest in future decades equal to or greater than the present decade.

NON-MARKET VALUED OUTPUTS - Goods and services not generally traded in the marketplace, but valued in terms of what reasonable people would be willing to pay for them rather than go without. Those obtaining the outputs do not pay all or part of what they would be willing to.

NON-SYSTEM ROAD - Travelways through the Forest that are not included on the Forest road inventory, are not maintained, and are generally jeep trails or tracks that developed through use.

NOXIOUS WEEDS - A plant species that is undesirable; conflicts, restricts, or otherwise causes problems with the management objectives.

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.

RECLAMATION - The reclamation of the land occupied by a facility for purposes other than transportation.

OCCUPANCY TRESPASS - The illegal occupation or possession of National Forest System land or property.

OFF-ROAD VEHICLE (ORV) - Vehicles such as motorcycles, all-terrain vehicles, four-wheel drive vehicles, and snowmobiles.

OLD GROWTH - A stand of trees that is past full maturity and showing decadence; the last stage in forest succession.

OPEN ROAD - Forest road under the jurisdiction of the Forest Service on which all types of legal motorized vehicles may be allowed to operate, and for which no restriction or closures has been issued under the authority of 36 CFR 261.

OPERATING PLAN - A written document approved by the Forest Supervisor which provides specifically, at the project level, for implementation of the management direction established in the Forest Plan.

OPPORTUNITY - See management opportunity.

OPPORTUNITY COST - An opportunity cost is revenue foregone. In this analysis it is a cost calculated as the difference between present net value of the alternatives and the present net value of the maximum PNW benchmark.

OUTPUTS - The goods, services, products, and concerns which are measurable and capable of being used to determine the effectiveness of programs and activities in meeting objectives. Goods, and products, or services that are purchased, consumed, or utilized directly by people. A broad term for describing any result, product, or service that a process or activity actually produces.

OVERMATURE TIMBER - Trees that have attained full development, particularly in height, and are declining in vigor, health, and soundness.

PARTIAL RETENTION - See "Visual Quality Objectives (VQO)".

PERMITTED USE (OBLIGATION) - Includes use by all livestock authorized to graze on National Forest System lands under grazing or livestock use permits including those livestock under temporary nonuse for personal or range resource protection purposes.

PERSONS-AT-ONE-TIME (PAOT) - A recreation capacity measurement term indicating the number of people who can use a facility or area at one time.

PLANNED IGNITIONS - A fire started by a deliberate management action.

PLANNING HORIZON - The planning horizon is 50 years for all resources except timber, which is 150 years. The 50-year horizon is divided into three periods. The first and second periods are 10 years each, and the third period is 30 years.

POLE TIMBER - Live trees of at least five inches in diameter at breast height, but smaller than the minimum utilization standard for sawtimber.

POLICY - A guiding principle which is based on a specific decision or set of decisions.

PRECOMMERCIAL THINNING - The practice of removing some of the trees less than merchantable size from a stand so that the remaining trees will grow faster.

PREDATOR - One that preys, destroys, or devours—usually an animal that lives by preying on other animals.

PRESCRIBED FIRE - A wildland fire burning under specified conditions which will accomplish certain planned objectives. The fire may result from either planned or unplanned ignitions. Plans for use of unplanned ignitions for this purpose must be approved by the Regional Forester.

PRESCRIPTION - A predesignated set of criteria established for the use of prescribed fire to accomplish specific land and resource management objectives. See "Management Prescription."

PRESENT NET VALUE (PNV) - The difference between the discounted benefits and the discounted costs over a given time period.

PRESENT VALUE COST (PVC) - The sum of each year's costs, discounted to the present.

PRESENT VALUE BENEFIT (PVB) - The sum of each year's benefit values, discounted to the present.

PRESERVATION - See "Visual Quality Objective (VQO)".

PRIMITIVE ROADS - Roads constructed with no regard for grade control or designed drainage, sometimes by merely repeatedly driving over an area. These roads are single lane, usually with native surfacing and sometimes passable with four-wheel drive vehicles only, especially in wet weather.

PRIMITIVE ROS CLASS - A classification of the recreation opportunity spectrum characterized by an essentially unmodified environment, where trails may be present but structures are rare, and where probability of isolation from the sights and sounds of man is extremely high.

PROGRAM BUDGET - The fiscal planning document for estimating short- and long-range dollar needs by program area.

PROGRAM DEVELOPMENT AND BUDGETING (PD&B) - The process by which activities for the Forest are proposed and funded.

PROGRAMMED HARVEST - The part of the potential yield that is scheduled for harvesting. It is based on current demand, funding, and multiple use considerations.

PROJECTS - Work schedule prescribed for a project area to accomplish management prescriptions. Projects can be for operation, maintenance, and protection (OMP) or for investment purposes. OMP projects are for ongoing work and are generally considered one year at a time. Investments can be of multiyear duration. A project is organized for managerial convenience, and is described by location, activities, outputs, effects, work force, dollars, time, and responsibility for execution.

PUBLICS - A specific part of a population that can be grouped together by the resource manager because of some common interest or purpose.

PUBLIC ISSUE - A subject or question of widespread public interest relating to management of the National Forest System.

RANGE ALLOTMENT - An area designated for use of a prescribed number and kind of livestock under one management plan.

RANGE CONDITION - The state of health of the range based on what it is naturally capable of producing.

RAPTORS - Bird of prey with a strong notched beak and sharp talons, such as the eagle, hawk, owl, etc.

REAL DOLLAR VALUE - A monetary value that compensates for the effects of inflation.

RECREATION CAPACITY - The number of people, measured in persons-at-one-time (PAOT), that can take advantage of the recreation opportunity at any one time without substantially diminishing the quality of the experience sought after.

RECREATION EXPERIENCE DEVELOPMENT LEVEL - A classification (using a 1 to 5 scale) of the level of development in camp and picnic sites as to the types of recreation opportunities and modifications to the environment that can be expected.

RECREATION INFORMATION MANAGEMENT (RIM) - The Forest Service system for recording recreation facility condition and use.

RECREATION MANAGEMENT AREA - An area of several thousand acres where the management emphasis is on recreation and where there is direction given to establish a Recreation Area Management Plan.

RECREATION OPPORTUNITY - Availability of a real choice for a user to participate in a preferred activity within a preferred setting, in order to realize those satisfying experiences which are desired.

RECREATION OPPORTUNITY SPECTRUM (ROS) - A method of measuring the ability of the Forest land to meet the various types of demands imposed by a variety of recreation uses.

RECREATION RESIDENCES - Houses or cabins on National Forest System land that are not the primary residence of the owner.

RECREATION VISITOR DAY (RVD) - Twelve visitor hours, which may be aggregated continuously, intermittently, or simultaneously by one or more persons.

RECREATIONAL LIVESTOCK - Animals used primarily in conjunction with recreation such as horses, mules, etc.

REDUCED SERVICE MANAGEMENT (RSM) - Management of recreation facilities below optimum maintenance standards.

REFORESTATION - The natural or artificial restocking of an area with forest trees.

REFORESTATION BACKLOG - Areas that need to have trees reestablished. This can be done by planting, seeding, or preparing the site for natural regeneration.

REGION - For Regional planning purposes, the standard administrative Region of the Forest Service, administered by the official responsible for preparing a Regional Guide.

REGIONAL GUIDE - The guide 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 establishes management standards and guidelines for the National Forest System lands of a given Region. It also disaggregates the EPA objectives assigned to the Region to the Forests within that Region.

REGULATED FOREST - A forest having an ideal distribution of age classes and where control of timber harvest is in accordance with tree growth and other management decisions.

REMOVAL CUT (FINAL CUT) - The removal of the last seed bearers or shelter trees after regeneration is established under a shelterwood method.

RESEARCH NATURAL AREAS (RNA) - An area in as near a natural condition 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.

RESOURCE MANAGEMENT PLAN - A Plan developed prior to the Forest Plan that outlines the activities and projects for a particular resource element independently of considerations for other resources. Such Plans are superseded by the Forest Plan.

RESTRICTED ROAD - A Forest road on which motorized vehicle use is restricted as to times or seasons of use, types of vehicles, vehicle equipment, or type of activity specified in orders issued under the authority of 36 CFR 261.

RETENTION - See "Visual Quality Objective (VQO)".

RIGHT-OF-WAY (ROW) - An accurately located strip of land with defined width, point of beginning, and point of ending. It is the area within which the user has authority to conduct operations approved or granted by the landowner in an authorizing document, such as a permit, easement, lease, license, or Memorandum of Understanding (MOU).

RIPARIAN - Areas of land that are directly influenced by water. They usually have visible vegetative or physical characteristics reflecting this water influence. Stream sides, lake borders, or marshes are typical riparian areas.

RIPARIAN AREAS - Streams, lakes, ponds, wetlands, floodplains, and their associated aquatic and riparian ecosystems.

RIPARIAN ECOSYSTEMS - A transition between the aquatic ecosystem and the adjacent upland terrestrial ecosystem and is identified by soil characteristics and distinctive vegetation communities that require free or unbounded water.

ROAD - A general term denoting a way for purposes of travel by vehicles greater than 40 inches in width. (FSM 7721.15c.)

ROAD MAINTENANCE LEVELS - Levels are described as follows:

Level 1 - Road normally closed to vehicle traffic.

Level 2 - Road open for limited passage of traffic but not normally suitable for passenger cars.

Level 3 - Road open for public traffic including passenger cars, but may not be smooth or comfortable.

Level 4 - Road suitable for all types of vehicles, generally smooth to travel, and dust may be controlled.

Level 5 - Road is smooth and dust free, and the surface is skid resistant if paved.

ROADED NATURAL - A classification of the recreation opportunity spectrum that characterizes a predominately natural environment with evidence of moderate permanent alternate resources and resource utilization. Evidence of the sights and sounds of man is moderate, but in harmony with the natural environment. Opportunities exist for both social interaction and moderate isolation from sights and sounds of man.

ROADLESS AREA REVIEW AND EVALUATION II (RARE II) - The national inventory of roadless and undeveloped areas within the National Forest and Grasslands. This refers to the second such assessment, which was documented in the Final Environmental Impact Statement of the Roadless Area Review and Evaluation, January 1979.

ROTATION - The planned number of years between the formation of a regeneration of trees and its final cutting at a specified stage of maturity.

ROUNDWOOD - Timber and fuelwood prepared in the round state—from felled trees to material trimmed, barked, and crosscut (logs, transmission poles, etc.).

RPA PROGRAM - The Forest and Rangeland Renewable Resources Planning Act of 1974. Also refers to the National Assessment and Recommended Program developed to fulfill the requirements of the Act. The most recent recommended program was done in 1980.

RURAL - A recreation opportunity spectrum classification for areas characterized by a substantially modified natural environment. Sights and sounds of man are evident. Renewable resource modification and utilization practices enhance specific recreation activities or provide soil and vegetative cover protection.

SAPLING - As used in timber survey, a size class definition; trees 1.0 to 4.9 inches at DBH.

SAWTIMBER - Live trees that equal or exceed the minimum utilization standards.

SEASONAL FACILITY - A facility which can be operated only as climatic conditions and structural and administrative limitations allow. The facility may be closed at times during the normal operating year to all or certain classes of use for reasons of weather, fire hazard, resource protection, or public safety. (FSM 7705.52.)

SEDIMENTARY ROCKS - Rocks formed by the accumulation and settling of suspended solid materials in water or from air. A characteristic feature of these rocks is a layered structure.

SEED TREE CUTTING - Removal in one cut of the mature timber crop from an area, except for a small number of seed bearers left singly or in small groups.

SEEDLINGS - Live trees less than 5 inches in diameter at breast height.

SEMI-PRIMITIVE MOTORIZED - A classification of the recreation opportunity spectrum characterized by a predominantly unmodified natural environment in a location that provides good to moderate isolation from sights and sounds of man except for facilities/travel routes sufficient to support motorized recreational travel opportunities which present at least moderate challenge, risk, and a high degree of skill testing.

SEMI-PRIMITIVE NONMOTORIZED - A classification of the recreation opportunity spectrum characterized by a predominately unmodified natural environment of a size and location that provides a good to moderate opportunity for isolation from sights and sounds of man. The area is large enough to permit overnight foot travel within the area, and presents opportunity for interaction with the natural environment with moderate challenge, risk, and use of a high degree of outdoor skills.

SENSITIVE SPECIES - Plant or animal species which are susceptible or vulnerable to activity impacts or habitat alternations.

SENSITIVITY LEVEL - A particular degree of measure of viewer interest in scenic qualities of the landscape. Three sensitivity levels are employed, each identifying a different level of user concern for the visual environment.

- Level 1 - Highest sensitivity
- Level 2 - Average sensitivity
- Level 3 - Lowest sensitivity

SERIAL CONDITION - The unique characteristics of a biotic community which is a developmental, transitory stage in an orderly ecologic succession involving changes in species, structure, and community processes with time.

SHEET EROSION - The removal of a fairly uniform layer of soil from the land surface by runoff water, without the development of conspicuous water channels.

SHELTERWOOD - The cutting method that describes the silvicultural system in which, in order to provide a source of seed and/or protection for regeneration, the old crop (the shelterwood) is removed in two or more successive shelterwood cuttings. The first cutting is ordinarily the seed cutting, though it may be preceded by a preparatory cutting, and the last is the final cutting. Any intervening cutting is termed removal cutting. An even-aged stand results.

SHORT-TERM FACILITY - A facility developed and operated for a limited period of time which will cease to exist as a transportation facility after the purpose for which it was constructed is completed, and the occupied land is reclaimed and managed for natural resource purposes. (FSM 7705.32.)

SILVICULTURAL SYSTEM - A management process whereby Forests are tended, harvested, and replaced, resulting in a Forest of distinctive form. 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 thereby produced.

(SINGLE) TREE SELECTION - The cutting method that describes the silvicultural system in which trees are removed individually, here and there, each year over an entire forest or stand. The resultant stand usually regenerates naturally and becomes all-aged.

SINGLE-STORIED STANDS - A stand of trees in which the canopy is contained in one layer.

SITE INDEX - A numerical evaluation of the quality of land for plant productivity.

SLASH - The residue left on the ground after timber cutting and/or accumulating there as a result of storm, fire, or other damage. It includes unused logs, uprooted stumps, broken or uprooted stems, branches, twigs, leaves, bark, and chips.

SNAG - A nonliving standing tree. The interior of the snag may be sound or rotted.

SOCIAL IMPACT ANALYSIS - A social assessment process that establishes the cultural and economic conditions, and the physical resource inventory of a specific geographic area, in order to forecast and control disruptive changes resulting from forest resource management activities.

SOCIAL RESOURCE UNIT (SRU) - An SRU is a geographic area tied together by a common physical, social, and economic environment. The SRU concept provides resource managers with a defined geographic unit of analysis that shows the relationship between physical and human resources. The SRU is used as a planning and implementation tool for forecasting and managing the social impacts resulting from changes in resource use on a Regional level.

SOIL EROSION - The detachment and movement of soil from the land surface by water or wind.

SOIL PRODUCTIVITY - The capacity of a soil to produce a specific crop such as fiber, forage, etc., under defined levels of management. Productivity 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 System land for some special purpose.

SPECIFIED ROAD - A road, including related transportation facilities and appurtenances, shown on Sale Area Map and listed in Table A9 of the Timber Sale Contract. (B5.2 TS Contract and FSM 2431.24-566.)

STAND (TREE STAND) - An aggregation of trees or other vegetation occupying a specific area and sufficiently uniform in composition (species), age arrangement, and condition as to be distinguishable from the Forest or other vegetation or other land cover on adjoining areas.

STANDARD AND GUIDELINE - A principle requiring a specific level of attainment, a rule to measure against; a mandatory requirement.

SUBSIDENCE - Surface caving or distortion due to underground excavations.

SUCCESIONAL STAGE - A stage or recognizable condition of a plant community that occurs during its development from bare ground to climax; for example, coniferous forests often progress through six recognized stages: grass-forb; shrub-seedling; pole-sapling; young; mature; old growth.

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. See also "Timber classification."

SUITABLE FOREST LAND - Lands allocated to timber management as a result of the three-stage suitability analysis.

SUPPRESSION - An act extinguishing or confining fire.

TARGETS - A quantifiable output. Assignments made to the Forest by the Regional Forester.

TECHNICALLY SUITABLE FOREST LAND - Land for which technology is available that will ensure timber production without irreversible resource damage to soils, productivity, or watershed conditions. There is reasonable assurance that such lands can be adequately restocked as provided in 36 CFR 219.13 (h)(3).

TEMPORARY ROAD - A road that will be physically obliterated and seeded after its primary use is completed; i.e., spur road for logging. It will never be used again.

THERMAL COVER - Cover used by animals to ameliorate effects of weather; for elk, a stand of coniferous trees 40 feet or taller with an average crown closure of 70 percent or more.

THINNING - A felling made in an immature stand primarily to maintain or accelerate diameter increment and also to improve the average form of the remaining trees without permanently breaking the canopy. An intermediate cutting.

THREATENED SPECIES - Those plant or animal species likely to become endangered species throughout all or a significant portion of their range within the foreseeable future.

TIMBER CLASSIFICATION - Forested land is classified under each of the land management alternatives according to how it relates to the management of the timber resource. The following are definitions of timber classifications used for this purpose:

1. Nonforest Land - Lands never having or incapable of having greater than 10 percent of the area occupied by forest trees and lands formerly forested and currently developed for nonforest use.
2. 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 nonforest use. Lands developed for nonforest use include areas for crops, improved pasture, residential, or administrative areas, improved roads of any width and adjoining road clearing and powerline clearing of any width. The term occupancy 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 is one acre. Unimproved roads, trails, streams, and clearings in forest areas are classified as forest if they are less than 120 feet in width.
3. Forest Land Suitable for Commercial Harvest - Land that is managed for timber production on a regulated basis.
4. Unsuitable Forest Land (Not Suited) - Forest land that is not managed for timber production because: (1) the land has been withdrawn by Congress, Secretary, or Chief; (2) technology is not available to prevent irreversible damage to soils, productivity, or watershed conditions; (3) there is no reasonable assurance that lands can be adequately restocked within 5 years after final harvest based on existing technology and knowledge; (4) there is at present, a lack of adequate information to responses to timber management activities; or (5) timber management is inconsistent with or not cost-efficient in meeting the management requirements and multiple-use objectives specified in the Forest Plan.
5. Tentatively Suitable (Commercial Forest Land) - Forest land which is producing or is capable of producing crops of industrial wood and (1) has not been withdrawn by Congress, the Secretary, or Chief; (2) existing technology and knowledge is available to ensure timber production without irreversible damage to soils, productivity, or watershed conditions; and (3) existing technology and knowledge provides reasonable assurance that adequate restocking can be attained within 5 years after final harvesting.

TIMBER STAND IMPROVEMENT (TSI) - Measures such as thinning, pruning, release cutting, prescribed fire, girdling, weeding, or poisoning of unwanted trees aimed at improving growing condition of the remaining trees.

TRACTOR LOGGING - Any logging method which uses a tractor as the motive power for transporting logs from the stumps to a collecting point—whether by dragging or carrying the logs.

TRADEOFF EVALUATION PROCESS (TEP) - A process whereby factors, issues, elements, etc., are evaluated with regard to the tradeoffs that would occur.

TRAIL MAINTENANCE LEVEL - Categories outlined in the Management Information Handbook describing the type and intensity of maintenance for trails.

TRANSITORY RANGE - Land that is suitable for grazing use of a nonenduring nature over a period of time. For example, on particularly disturbed lands, grass may cover the area for a period of time before being replaced by trees or shrubs not suitable for forage.

TRAVEL MANAGEMENT - The administrative decisions on the location and timing of road and trail closures.

TWO-STORIED STANDS - A stand of trees whose crown structure is divided into two distinct layers.

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.

UNIVERSAL SOIL LOSS EQUATION (USLE) - An empirical erosion model, originally designed for agricultural situations that computes long-term average soil losses from sheet and rill erosion under specific conditions. Recent research has provided methods so that USLE can also be used to estimate sheet and rill erosion for Forest Management activities.

UNPLANNED IGNITION - A fire started at random by either natural or human causes, or a deliberate incendiary fire.

UPRATING - Increasing the capacity of an existing electrical transmission system.

URBAN ROS CLASS - A classification of the Recreation Opportunity Spectrum in which the natural setting is dominated by man-made structures and the sights and sounds of man predominate.

UTILIZATION STANDARDS - Standards guiding the projection of timber yields and the use and removal of timber. The standards are described in terms of minimum diameter at breast height, minimum length, and percent soundness of the wood, as appropriate.

VARIETY CLASS - A classification system for establishing three visual landscape categories according to the relative importance of the visual features. This classification system is based on the premise that all landscapes have some visual values, but those with the most variety or diversity of visual features have the greatest potential for high scenic value.

VEGETATIVE MANIPULATION - The change of one vegetation type to another. It can be done by a tractor, chemicals, or fire. Usually, this is done to increase forage for livestock and can be a beneficial tool for wildlife.

VIALE POPULATIONS - A number of individuals of a species sufficient to ensure the long-term existence of the species in natural self-sustaining populations adequately distributed throughout their region.

VISUAL QUALITY OBJECTIVE (VQO) - Categories of acceptable landscape alteration measured in degrees of deviation from the natural appearing landscape.

Preservation (P) - A Visual Quality Objective that provides for ecological change only.

Partial Retention (PR) - A Visual Quality Objective which in general means man's activities may be evident but remain visually subordinate to the characteristic landscape.

Retention (R) - A Visual Quality Objective which in general means man's activities may not be evident and must remain subordinate to the characteristic landscape.

Modification (M) - A Visual Quality Objective meaning man's 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 foreground or middleground.

Maximum Modification (MM) - A Visual Quality Objective meaning man's activity may dominate the characteristic landscape but should appear as a natural occurrence when viewed as background.

Enhancement (E) - A short-term management alternative which is done with the express purpose of increasing positive visual variety where little variety now exists.

Rehabilitation (R) - A short-term management alternative used to return existing visual impacts in the natural landscape to a desired visual quality.

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.

WATERSHED - The entire area that contributes water to a drainage system or stream.

WHEELING - The use of a single electrical transmission system by more than one supplier.

WILDERNESS - Areas designated by congressional action under the 1964 Wilderness Act and the 1984 Utah Wilderness Act. Wilderness is defined as undeveloped Federal land retaining its primeval character and influence without permanent improvements or human habitation. Wilderness areas are protected and managed to preserve their natural conditions, which generally appear to have been affected primarily by the forces of nature with the imprint of man's activity substantially unnoticeable; have outstanding opportunities for solitude or a primitive and unconfined type of recreation; include at least 5,000 acres or is of sufficient size to make practical their preservation, enjoyment, and use in an unimpaired condition; and may contain features of scientific, educational, scenic, or historic value as well as ecologic and geologic interest.

WILDFIRE - Any wildland fire that is not a prescribed fire.

WILDLIFE AND FISH USER DAY (WFUD) - Twelve visitor hours which may be aggregated continuously, intermittently, or simultaneously by one or more persons.

WILDLIFE HABITAT DIVERSITY - The distribution and abundance of different plant and animal communities and species within a specific area.

WILDLIFE HABITAT EFFECTIVENESS - The character of locations where wildlife are not disturbed by human activities.

WINDOW - A critical segment of terrain through which right-of-way could pass in traversing from point of origin to destination.

WINTER RANGE - See "Big-Game Winter Range".

WITHDRAWAL - An order removing specific land areas from availability for certain uses.

WOOD FIBER PRODUCTION - The growing, tending, harvesting, and regeneration of harvestable trees.

WORK CENTER - A facility where crews assemble and are direct toward their various work assignments. A work center can be located at an administrative site. A work center normally will include storage and warehousing facilities and may include crew housing.

YEAR-ROUND ECONOMICS - Economies based on employees working year-round as opposed to seasonal employment.

YELLOW CAKE - The final precipitate formed in the milling process of uranium ore.

ZONE OF INFLUENCE (ZOI) - The area influenced by Forest Service management activities.

APPENDIX F

MAPS

Coal Multiple-Use Evaluation Areas	F-2
Corridor Evaluation; Manti and San Pitch Divisions	F-4
Corridor Evaluation; LaSal Division	F-6
Visual Quality Objective, Final Condition; Manti and San Pitch Divisions	See Map Packet
Visual Quality Objective, Final Condition; LaSal Division	See Map Packet
Recreation Opportunity Spectrum; Manti and San Pitch Divisions	See Map Packet
Recreation Opportunity Spectrum; LaSal Division	See Map Packet
Travel Map; Manti and San Pitch Divisions	See Map Packet
Travel Map; LaSal Division	See Map Packet
Forest Plan Map; Manti and San Pitch Divisions	See Map Packet
Forest Plan Map; LaSal Division	See Map Packet

