

CHAPTER II

ALTERNATIVES

OVERVIEW

The four alternative land allocations for the Forest Service Sangre de Cristo Wilderness Study Area include the contiguous Black Canyon, South Piney Creek, Papa Keal, and Zapata Creek Wilderness Study Areas of the U.S. Department of the Interior, Bureau of Land Management. The Federal Land Policy and Management Act, Public Law 94-579, of 1976 mandated the inventory of all roadless areas of 5000 acres or more on lands administered by the Department of Interior, Bureau of Land Management. This act also required that these lands be studied for their suitability or unsuitability for inclusion in the National Wilderness Preservation System. The Black Canyon (C0050131), South Piney Creek (C0050132B), Papa Keal (C0050137), and Zapata Creek (C0050139B) Wilderness Study Areas are included in this report.

The evaluation of the Sangre de Cristo Wilderness Study Area was directed by Congress in the "Colorado Wilderness Act" (Public Law 96-560) of December 22, 1980.

An interagency Agreement between the Forest Service, U.S. Department of Agriculture, and the Bureau of Land Management, U.S.D.I., for the study of potential wilderness areas on contiguous lands administered by the two Agencies, dated February 20, 1981, provided for the joint study of adjoining areas and designation of the lead and participating agency in the conduct of the study. Under this agreement, it was determined that the Forest Service would be the lead agency and BLM, the participating agency.

A recommendation in the Record of Decision, Final Environmental Impact Statement for the Pike and San Isabel National Forests Land and Resource Management Plan in respect to the inclusion of the four Bureau of Land Management Wilderness Study Areas, is a joint recommendation with that agency.

Appendix A of this report, "Bureau of Land Management Situation Analysis", contains the management situation analysis conducted by BLM for the four contiguous BLM lands.

The Wilderness Study Area will be managed to maintain the existing wilderness character until Congress acts on the proposal.

ALTERNATIVES CONSIDERED IN DETAIL

Alternatives including the matching Forest Plan alternatives are displayed in Figures II-1 through II-6.

SUITABLE FOR WILDERNESS DESIGNATION ALTERNATIVE - ALTERNATIVE 1

This alternative is the same as Alternatives B and C of the Forest Plan FEIS.

This alternative would result in a recommendation to Congress that the entire Sangre de Cristo Wilderness Study Area, (except for a 1,300 acre adjustment on the San Isabel National Forest) including the contiguous Bureau of Land Management lands, is suitable for inclusion in the National Wilderness Preservation System. The suitable area would consist of 86,000 acres on the San Isabel National Forest, 130,700 acres on the Rio Grande National Forest, and 4,910 acres on the four contiguous BLM areas, a total of approximately 221,610 acres.

The Forest Plan Management Area Prescriptions would be applied as shown in Figures II-1 and II-2. Following is a summary description of those prescriptions:

<u>Management Area</u>	<u>Description</u>	<u>Approximate Acres</u>
8A	Pristine biophysical conditions, high degree of solitude	5,866
8B	Primitive wilderness opportunities, Natural biophysical conditions	56,029
8C	Semiprimitive wilderness opportunities, essentially Natural biophysical conditions	159,568
8D	Limited Areas of high day use occurrence	147

In areas managed under Prescription 8A, emphasis is on protecting and perpetuating essentially pristine, bio-physical conditions and maintaining a high degree of solitude for both wildlife and humans with no perceptible evidence of past human use. Evidence of current human use, including permitted and recreation livestock, is not noticeable the following season, or so that natural biological processes are not adversely or artificially changed over time by human use.

In areas managed under Prescription 8B, emphasis is on protecting and perpetuating the natural biophysical conditions in designated wilderness. On-site regulation of recreation use is minimal. Travel is cross-country or by use of a low-density constructed trail system.

In areas managed under Prescription 8C, emphasis is on protecting and perpetuating essentially natural biophysical conditions in designated wilderness. Solitude and a low level of encounters with other wilderness users and evidence of past human use is not an essential part of the social setting. Designated campsites are used and show evidence of repeated but acceptable levels of use.

In areas managed under Prescription 8D, emphasis is on protecting and perpetuating essentially natural biophysical conditions inside wilderness boundaries which are adjacent to and accessed from heavily used recreation areas. Human use is characterized by large number of day-users traveling relatively short distances into the wilderness. Facilities such as bridges needed for user safety or biophysical protection may be present.

**SUITABLE FOR WILDERNESS DESIGNATION
WITH BOUNDARY MODIFICATION ALTERNATIVE - (PROPOSED ACTION)-ALTERNATIVE 2**

This alternative is the same as Alternative A of the Forest Plan FEIS. This alternative, would recommend to Congress that about 190,469 acres of National Forest System lands and lands administered by the Bureau of Land Management is suitable for inclusion in the National Wilderness Preservation System. This alternative would further recommend that about 32,273 acres are unsuitable for wilderness designation. The suitable portion includes 187,169 acres of National Forest System lands on the San Isabel and Rio Grande National Forests and 3,300 acres of lands administered by the Bureau of Land Management. The unsuitable portion includes 30,663 acres of National Forest System lands and 1,610 acres of lands administered by the Bureau of Land Management. The boundaries of this alternative are shown on Figure II-6. The unsuitable portions would be managed in accordance with the National Forest Land and Resource Management Plans for the respective Forests and the Saguache and San Luis Management Framework Plans for the respective BLM units.

The Forest Plan Management Area Prescriptions would be applied as shown in Figure II-3. Following is a summary description of those prescriptions:

<u>Management Area</u>	<u>Description</u>	<u>Approximate Acres</u>
8A	Pristine biophysical conditions, high degree of solitude	5,866
8B	Primitive wilderness opportunities, Natural biophysical conditions	65,679

8C	Semiprimitive wilderness opportunities, essentially Natural biophysical conditions	118,777
8D	Limited areas of high day use occurrence	147
2A	Semiprimitive recreation, motorized on primitive roads	12,200
3A	Semiprimitive, Nonmotorized, moderate recreation use	1,500
4B	Emphasis on Management Indicator Species, dispersed recreation use	13,153
7A	Emphasis on wood fiber production and utilization	5,420

In areas managed under Prescription 2A, emphasis is for semiprimitive motorized recreation opportunities such as snowmobiling, four-wheel driving, and motorcycling both on and off roads and trails. Travel may be restricted or seasonally prohibited to designated routes to protect physical and biological resources. Harvest methods are clearcutting in aspen and lodgepole pine, and shelterwood in all other forest cover types.

In areas managed under Prescription 3A, emphasis is for semiprimitive nonmotorized recreation in roaded and unroaded areas. Opportunities such as hiking, horseback riding, hunting, and cross-country skiing are available. Seasonal or permanent restrictions may be applied to provide seclusion for wildlife.

In areas managed under Prescription 4B, emphasis is on the habitat needs of one or more indicator species. Vegetation characteristics and human activities are managed to provide optimum habitat. Tree stands are managed for specific size, shape, interspersion, crown closure, age, structure, and edge. Rangeland vegetation is managed to provide needed species composition.

In areas managed under Prescription 7A, emphasis is on wood fiber production and utilization. Harvest methods by forest cover type are clearcutting in aspen, lodgepole pine, and Englemann spruce subalpine fir, and shelterwood in interior ponderosa pine and mixed conifers. Recreation opportunities range from the roaded natural type to semi-primitive nonmotorized depending on travel management requirement for the area.

Narrative descriptions of the wilderness Management Area Prescriptions 8A-8D are listed under Alternative 1.

UNSUITABLE FOR WILDERNESS DESIGNATION (NO ACTION) ALTERNATIVE - ALTERNATIVE 3

This alternative is the same as Alternative E of the Forest Plan FEIS. This alternative would recommend that the entire Sangre de Cristo Wilderness Study Area totaling 218,000 acres on the San Isabel and Rio Grande National Forests and the four contiguous BLM areas totaling 4,910 acres are unsuitable for inclusion in the National Wilderness Preservation System. The areas would be managed in accordance with the National Forest Land and Resource Management Plans for the respective Forests and the Saguache and San Luis Management Framework Plans for the respective BLM units.

The Forest Plan Management Area Prescriptions would be applied as shown in Figure II-5. Following is a summary description of those prescriptions:

<u>Management Area</u>	<u>Description</u>	<u>Approximate Acres</u>
2A	Semiprimitive recreation, motorized on primitive roads	10,200
2B	Roaded natural recreation, heavy use near roads	2,400
3A	Semiprimitive Nonmotorized, moderate recreation use	160,200
4B	Emphasis on habitat management and dispersed recreation use	26,900
6B	Emphasis on forage for livestock on permitted range	14,100
7A	Emphasis on wood fiber production and utilization	7,100
9B	Emphasis on production of available water	1,800

Except for Prescriptions 2B and 9B, narrative descriptions of these Management Area Prescriptions are listed under Alternative 2.

In areas managed under Prescription 2B, the emphasis is for rural and roaded-natural recreation opportunities such as driving for pleasure, viewing scenery, picnicking, fishing, snowmobiling, and cross-country skiing. Conventional use of highway-type vehicles is provided for in design and construction of facilities. Harvest methods are clearcutting in aspen and lodgepole pine, shelterwood in interior ponderosa pine, mixed conifer and Englemann spruce-subalpine fir.

In areas managed under Prescription 9B, emphasis is on increasing water yield and improving timing of flow through management of forest vegetation. The location, shape, and size of treatment areas are specifically designed. Clearcutting is the harvest method for all forest cover types. Motorized travel may be prohibited.

UNSUITABLE FOR WILDERNESS DESIGNATION ALTERNATIVE (RESOURCE DEVELOPMENT)
- ALTERNATIVE 4

This alternative is the same as Alternative D of the Forest Plan FEIS and would recommend that the entire Sangre de Cristo Wilderness Study Area and the four contiguous BLM areas are unsuitable for inclusion in the National Wilderness Preservation System. Alternative 4 is similar to Alternative 3, except that under Alternative 4 greater emphasis is placed on resource development to produce commodity outputs.

The Forest Plan Management Area Prescriptions would be applied as shown in Figure II-4. Following is a summary description of those prescriptions:

<u>Management Area</u>	<u>Description</u>	<u>Approximate Acres</u>
2A	Semiprimitive recreation, motorized on primitive roads	8,900
2B	Roaded natural recreation, heavy use near roads	-0-
3A	Semiprimitive Nonmotorized, moderate recreation use	160,200
4B	Emphasis on habitat management and dispersed recreation use	26,900

6B	Emphasis on forage for livestock on permitted range	14,100
7A	Emphasis on wood fiber production and utilization	10,800
9B	Emphasis on production of available water	1,800

Narrative descriptions of these Management Area Prescriptions are listed under Alternatives 2 and 3.

See Chapter III, Management Direction, Forest Plan for a complete description of each Management Area Prescription.

SUMMARY OF ENVIRONMENTAL AND ADMINISTRATIVE CONSEQUENCES

Table II-A shows the expected environmental and administrative consequences under each alternative. In summary, the major differences in the alternatives are in the area available for vegetation management, potential for water yield increase, potential for maintenance and improvement of wildlife habitat, elimination of conflicting uses, and improved manageability.

Figure II-1

SANGRE DE CRISTO WILDERNESS STUDY AREA

ALTERNATIVE 1
FOREST PLAN FEIS ALTERNATIVE B

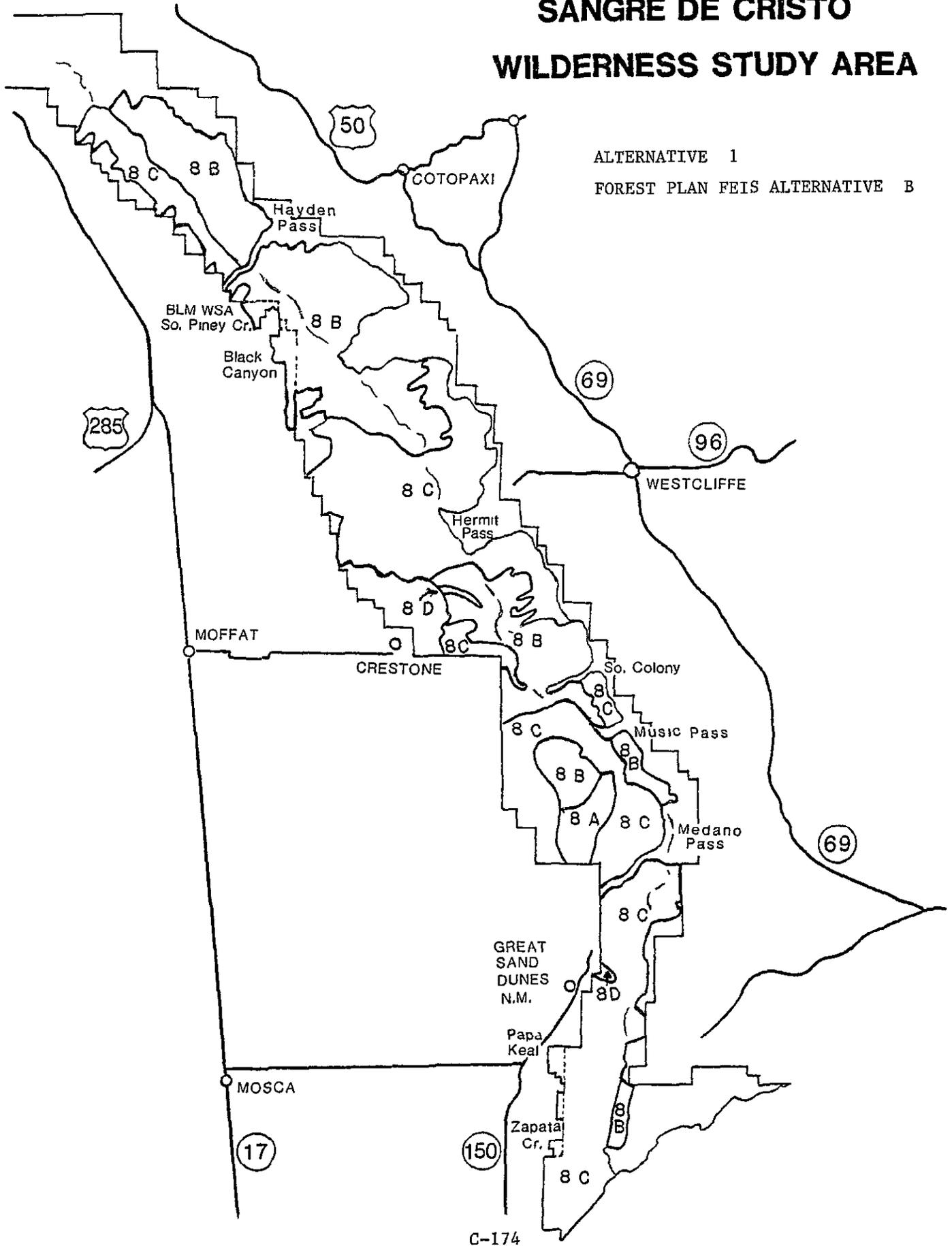
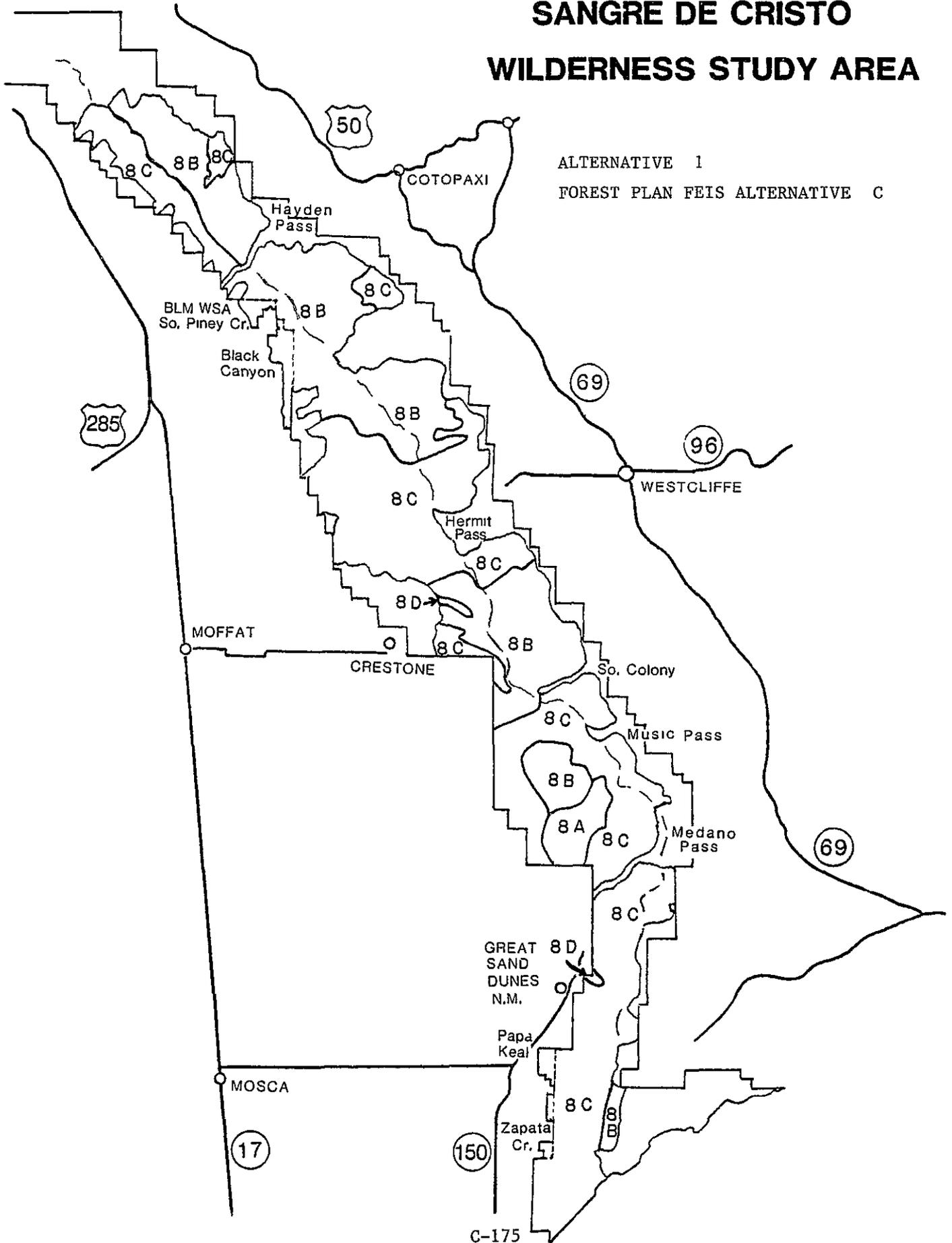


Figure III-2

SANGRE DE CRISTO WILDERNESS STUDY AREA

ALTERNATIVE 1
FOREST PLAN FEIS ALTERNATIVE C



SANGRE DE CRISTO WILDERNESS STUDY AREA

ALTERNATIVE 2 (PROPOSED ACTION)
FOREST PLAN FEIS ALTERNATIVE A

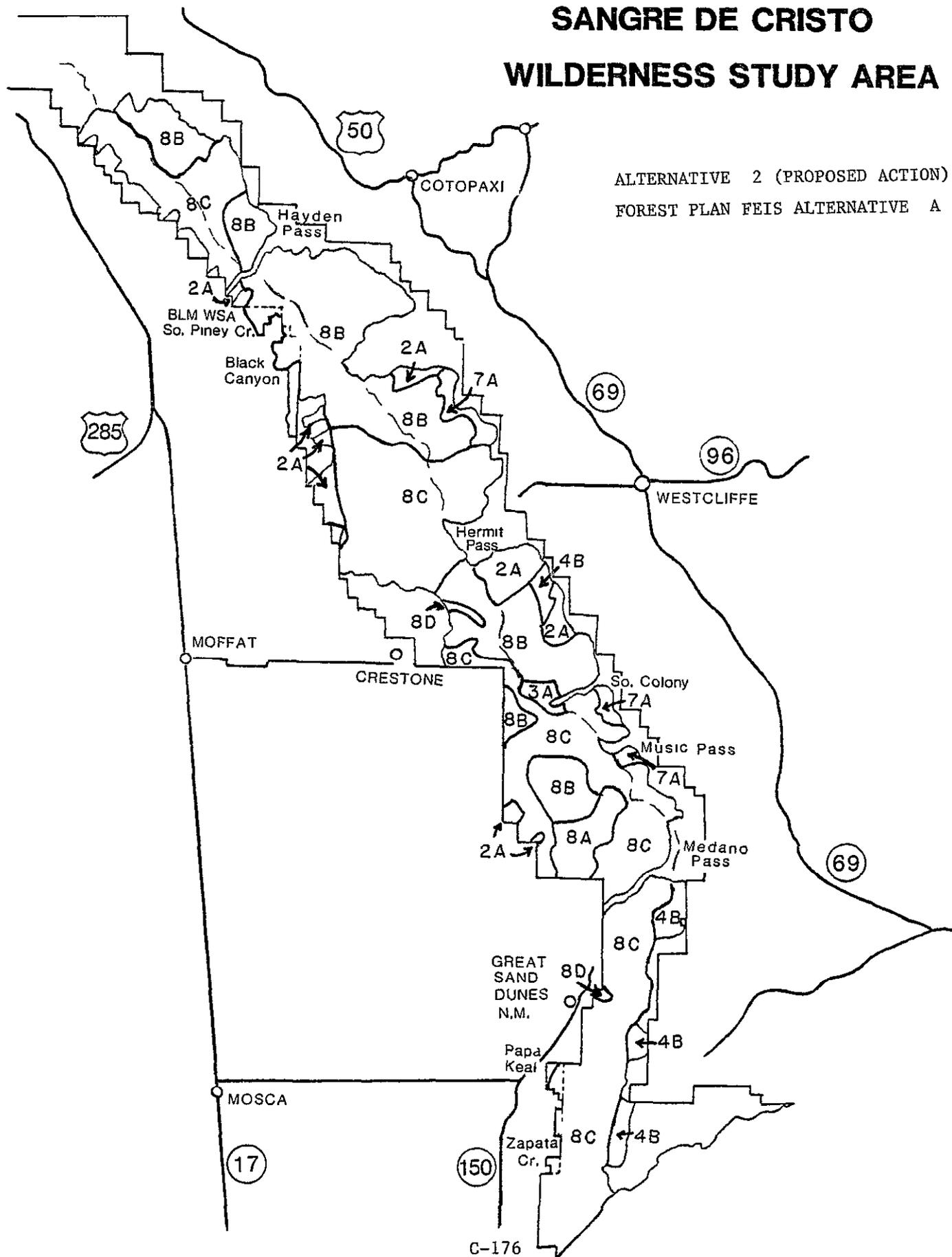
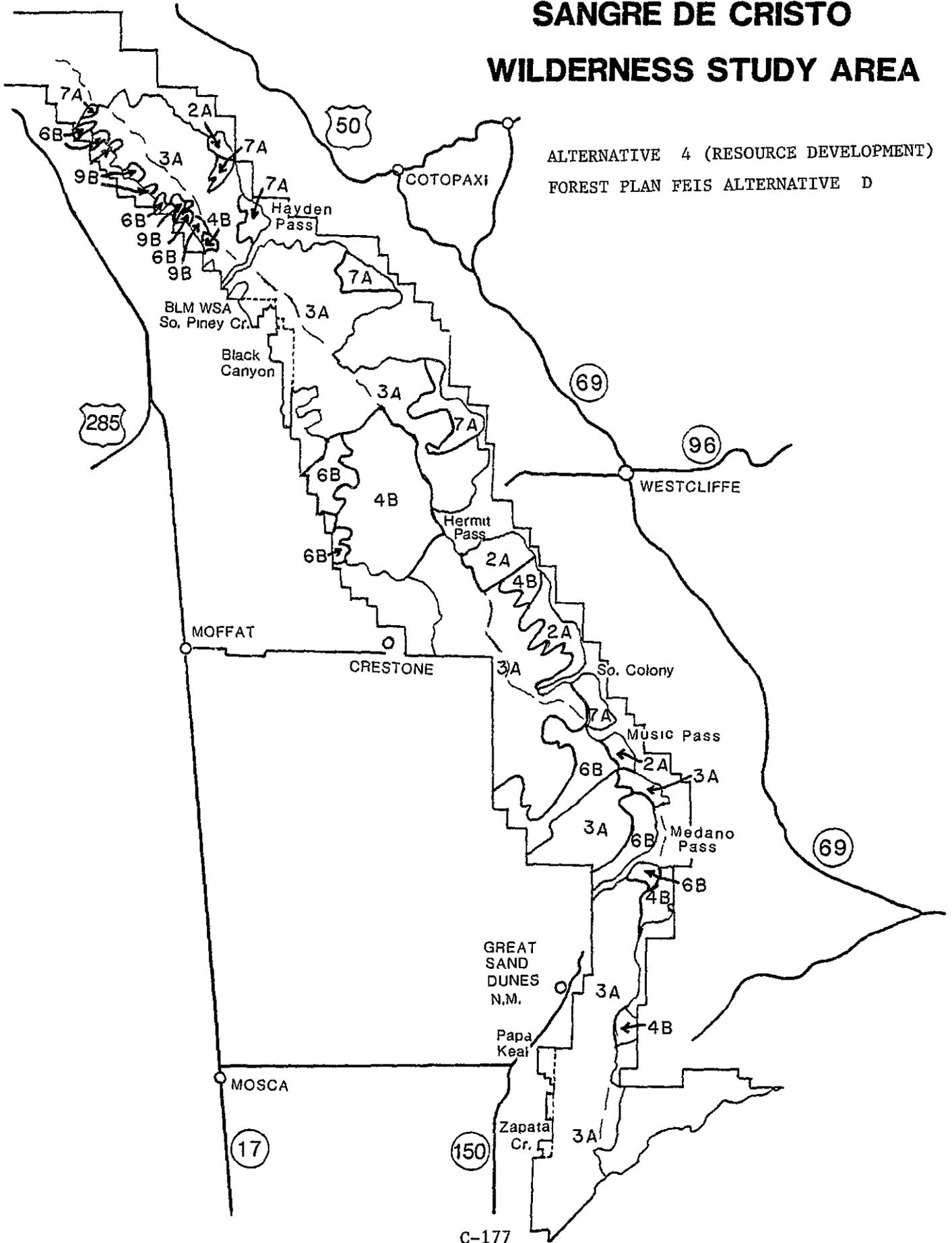


Figure II - 4

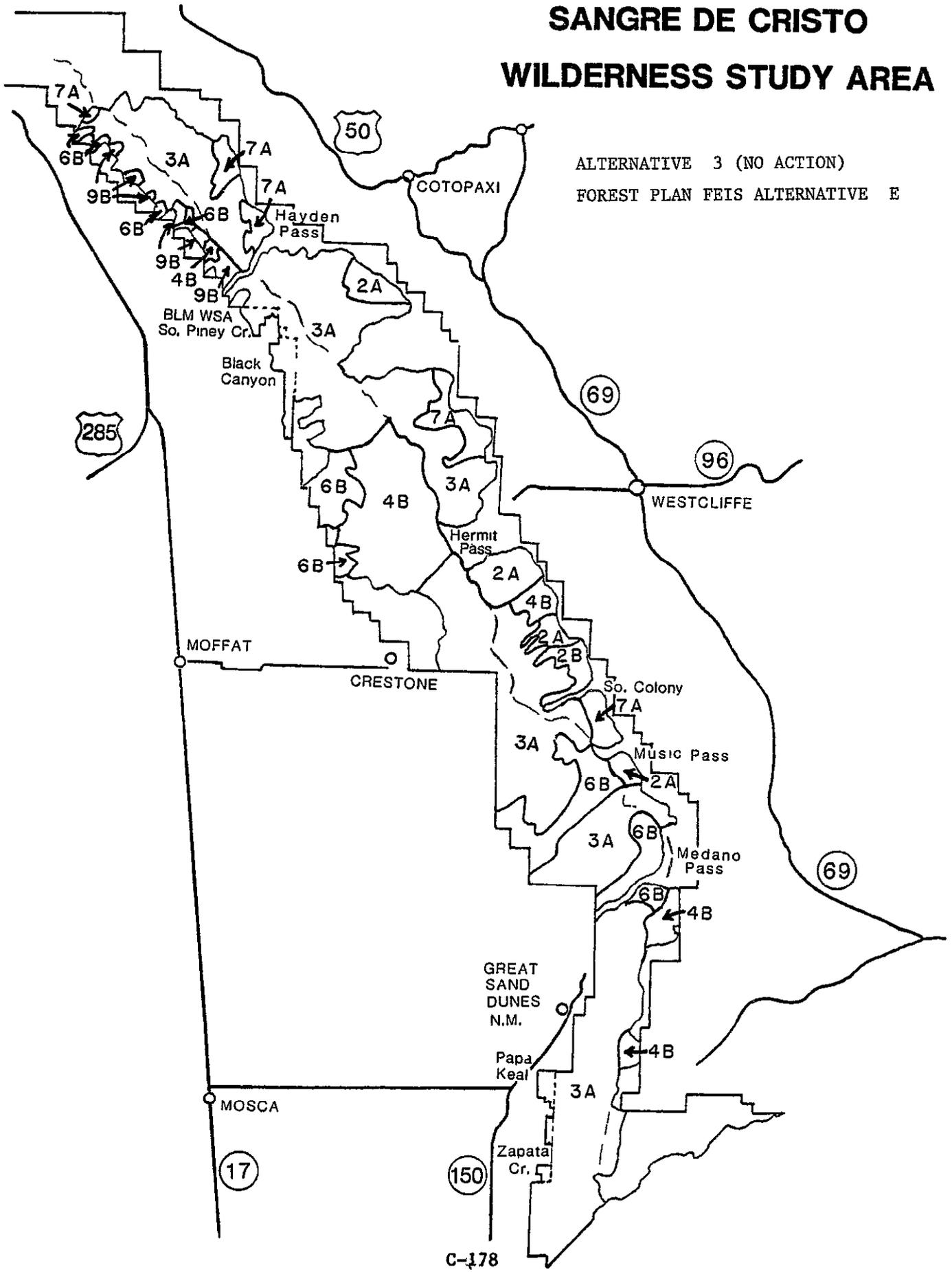
SANGRE DE CRISTO WILDERNESS STUDY AREA

ALTERNATIVE 4 (RESOURCE DEVELOPMENT)
FOREST PLAN FEIS ALTERNATIVE D



SANGRE DE CRISTO WILDERNESS STUDY AREA

ALTERNATIVE 3 (NO ACTION)
FOREST PLAN FEIS ALTERNATIVE E



SANGRE de CRISTO WILDERNESS STUDY AREA

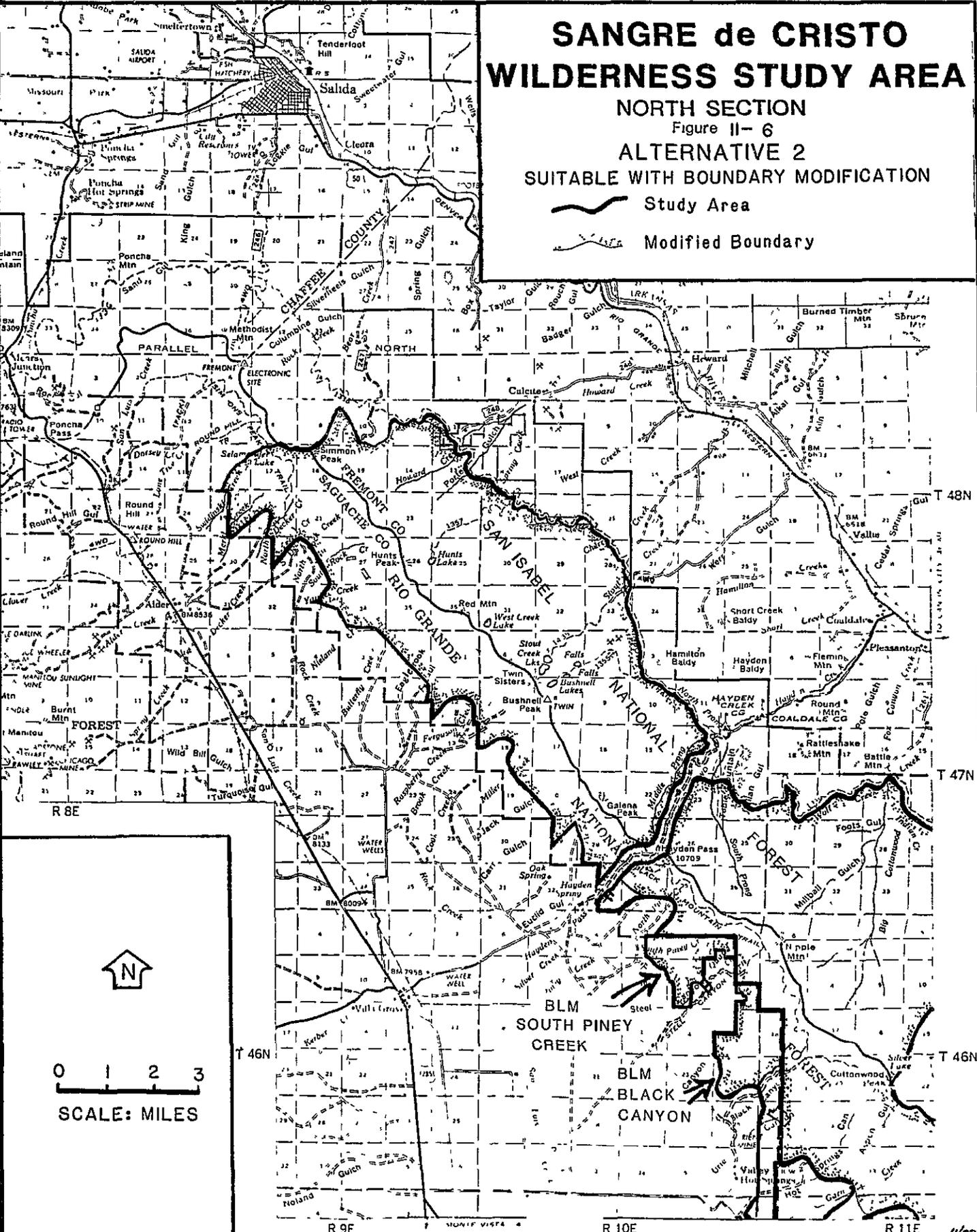
NORTH SECTION

Figure II-6

ALTERNATIVE 2

SUITABLE WITH BOUNDARY MODIFICATION

-  Study Area
-  Modified Boundary

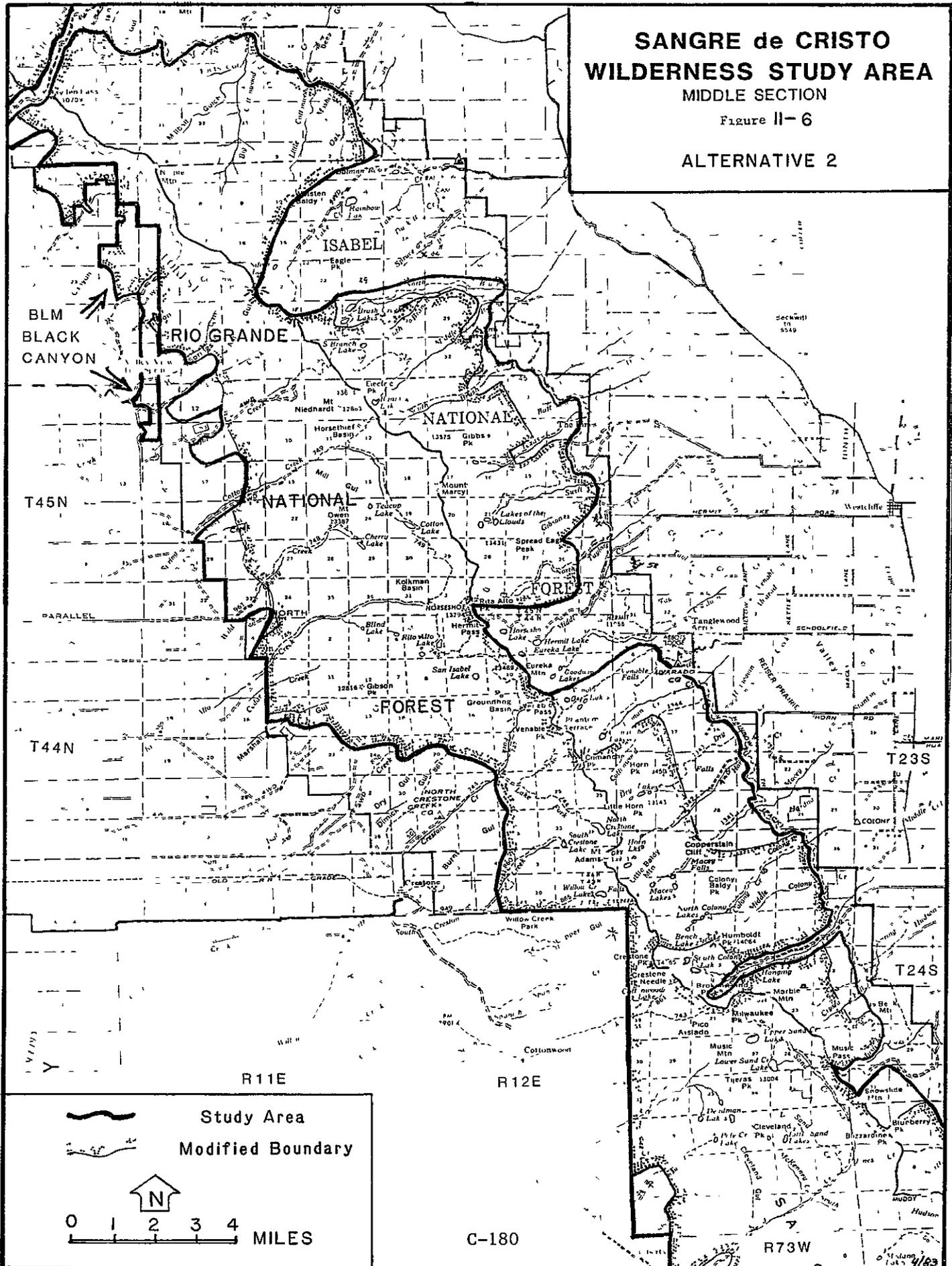


SANGRE de CRISTO WILDERNESS STUDY AREA

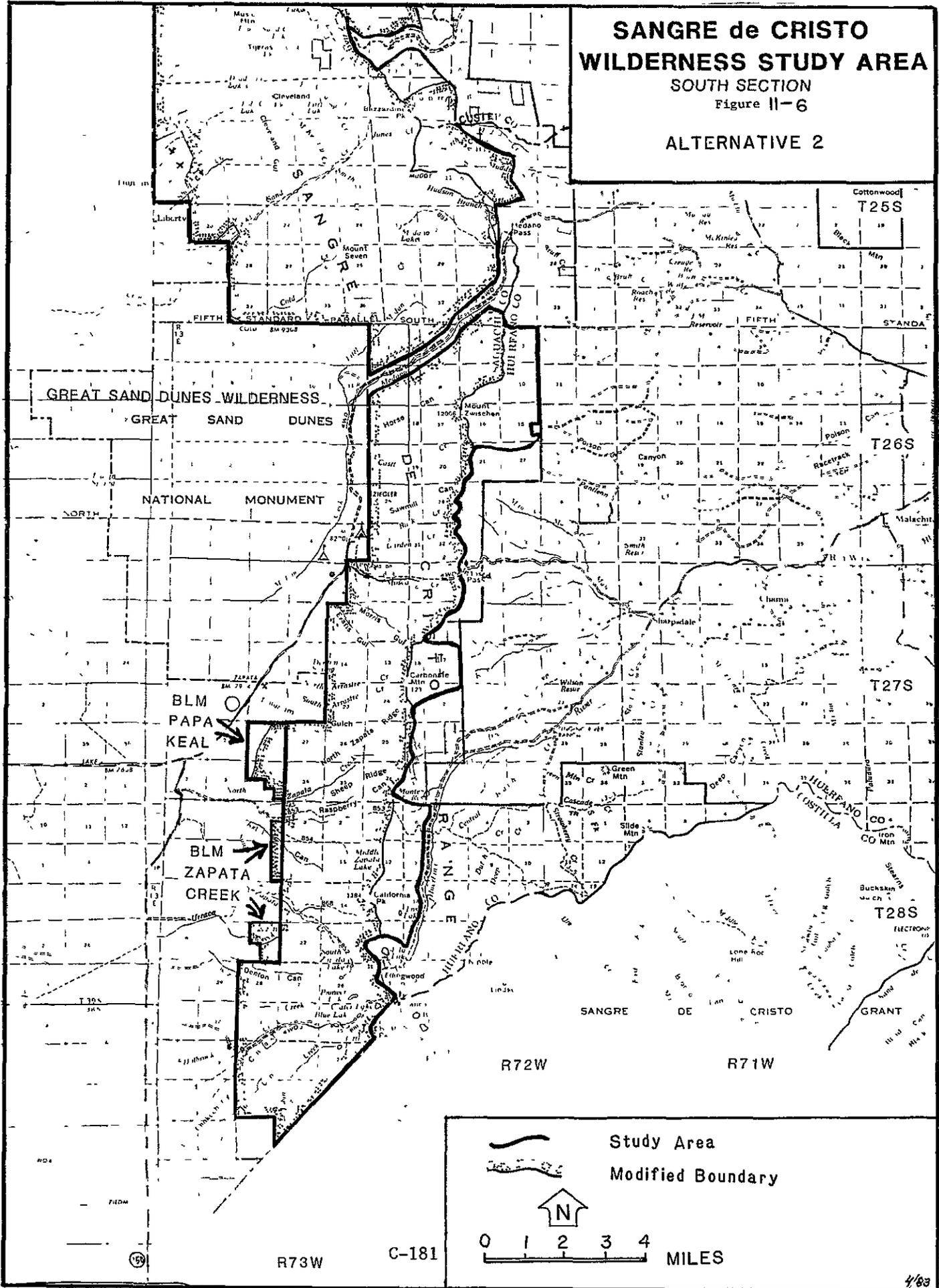
MIDDLE SECTION

Figure II-6

ALTERNATIVE 2



**SANGRE de CRISTO
WILDERNESS STUDY AREA**
SOUTH SECTION
Figure II-6
ALTERNATIVE 2



198

R73W

C-181

R72W

R71W

Study Area
Modified Boundary

N

0 1 2 3 4 MILES

TABLE II-A
SUMMARY OF ENVIRONMENTAL AND ADMINISTRATIVE CONSEQUENCES

Resource	Units	ALTERNATIVES									
		Alternative 1 Suitable Forest Plan FEIS Alternatives B & C			Suitable With Boundary Modifications	Alternative 2 Forest Plan FEIS Alternative A			Alternatives 3 & 4 Unsuitable Forest Plan FEIS Alternatives D & E		
		PSI 1/	RG	BLM		PSI	RG	BLM	PSI	RG	BLM
<u>Wilderness</u>											
Area of Wilderness	M Acres 1/	86.0	130.7	4.9	61.6	125.5	3.3	-0-	-0-	-0-	
Area of Nonwilderness	M Acres	-0-	-0-	-0-	25.6	5.1	1.6	86.0	130.7	4.9	
Wilderness Character		Maintained On Entire Area			Potential Loss On Unsuitable Portion			Potential Loss On Entire Area			
<u>Minerals (including oil and gas)</u>											
Cost of Exploration*			Decreased				Decreased			No Change	
Likelihood of mineral exploration and development			Decreased				Decreased			No Change	
Chance of conflicts with wilderness values			Increased				Increased			No Change	
<u>Mineral leasing effects</u>											
Geophysical Investigation	M Acres	-0-	-0-	-0-	-0-	5.2	4.9	86.0	130.7	4.9	
Leasable	M Acres	-0-	-0-	-0-	24.4	5.2	1.6	86.0	130.7	4.9	
No Leasing (Will be withdrawn)	M Acres	86.0	130.7	4.9	61.6	125.5	3.3	-0-	-0-	-0-	
Minerals Reserved	M Acres	-0-	.04	-0-	-0-	.04	-0-	-0-	-0-	-0-	
*Exploration Not Allowed if Area is Withdrawn.											
<u>Timber</u>											
Current annual allowable sale quantity (slopes less than 45 percent)	MMBF 3/	-0-	-0-	-0-	1.5	-0-	-0-	2.5	-0-	-0-	
Long term sustained yield Productive Forest land - All Slopes	MMBF	-0-	-0-	-0-	41	0.3	-0-	7.9	0.3	-0-	

C-182

(None - No Action)

(None - No Action)

(None - No Action)

(None - No Action)

TABLE II-A
SUMMARY OF ENVIRONMENTAL AND ADMINISTRATIVE CONSEQUENCES

Resource	Units	ALTERNATIVES									
		Alternative 1 Suitable Forest Plan FEIS Alternatives B & C			Suitable With Boundary Modifications Forest Plan FEIS Alternative A	Alternative 2 Suitable With Boundary Modifications Forest Plan FEIS Alternative A			Alternatives 3 & 4 Unsuitable Forest Plan FEIS Alternatives D & E		
		PSI 1/	RG	BLM		PSI	RG	BLM	PSI	RG	BLM
Long term sustained yield Productive Forest Land (slopes less than 45%)	MMBF	-0-	-0-	-0-	1.8	-0-	-0-	3.8 (None - No Action)	-0-	-0-	
CFE (Productive Forest Land) 4/	M Acres	43.7	11.3	-0-	43.7	11.3	-0-	43.7	11.3	-0-	
Growing Stock Volume	MMBF	270.7 MMBF (Total Area)			270.7 MMBF (Total Area)			270.7 MMBF (Total Area)			
<u>Water Quantity</u>											
Water yield increase potential	M Acre-feet	-0-	-0-	-0-	0.7	1.0	-0-	1.1 (None - No Action)	1.0	-0-	
<u>Water Uses</u>											
Effects on existing water uses (5 Ditches)	Number of Improvements Included	2	3	0	1	3	0	0	0	0	
<u>Range</u>											
Livestock Forage	M AUM's 5/	3.6	2.8	0.06	3.6	2.8	0.06	3.6	2.8	0.06	
<u>Wildlife</u>											
Improve winter range (Deer and Elk)	M Acres	-0-	-0-	-0-	3.4	5.0	-0-	4.4 (None - No Action)	16.7	-0-	
Maintain or improve diversity	M Acres	-0-	-0-	-0-	19.9	0.8	-0-	43.7 (None - No Action)	11.3	-0-	
<u>Recreation</u>											
Recreation Opportunity Class											
Roaded Natural	M Acres	-0-	-0-	-0-	1.8	5.2	1.6	1.9	6.5	2.9	
Day Use Portal	M Acres	-0-	0.1	-0-	-0-	0.1	-0-	-0-	-0-	-0-	

Table II-A Continued

TABLE II-A
SUMMARY OF ENVIRONMENTAL AND ADMINISTRATIVE CONSEQUENCES

Resource	Units	ALTERNATIVES												
		Alternative 1 Suitable Forest Plan FEIS Alternatives B & C			Suitable With Boundary Modifications	Alternative 2 Forest Plan FEIS Alternative A			Alternatives 3 & 4 Unsuitable Forest Plan FEIS Alternatives D & E					
		PSI <u>1/</u>	RG	BLM		PSI	RG	BLM	PSI	RG	BLM			
Semi-Primitive														
Motorized	M Acres	-0-	-0-	-0-	12.3	-0-	-0-	12.3	9.1	2.0				
Non-motorized	M Acres	50.6	107.2	1.7	29.4	101.9	3.3	73.0	86.4	-0-				
Primitive	M Acres	35.4	17.5	3.2	43.7	17.5	-0-	-0-	28.7	-0-				
Pristine	M Acres	-0-	5.9	-0-	-0-	5.9	-0-	-0-	-0-	-0-				
Area open to ORV use	M Acres	-0-	-0-	-0-	-0-	5.2	1.6 <u>6/</u>	-0-	65.0	4.9 <u>6/</u>				
Area with restrictions on ORV use	M Acres	-0-	-0-	-0-	25.7	-0-	-0-	87.2	0.9	-0-				
Area closed to ORV use <u>7/</u>	M Acres	87.2	130.6	4.9	61.5	125.5	3.3	-0-	64.8	-0-				
Annual Recreation Use at Capacity	M PAOT <u>8/</u>	1.7	3.6	1	2.0	4.0	1	4.4	5.5	2				
	MRVD <u>9/</u>	92.3	210.5	6.8	131.6	216.9	7.9	246.2	271.7	11.7				
<u>Land Ownership</u>														
Acreage of Inholdings	Acres	140	660	-0-	-0-	516	-0-	-0-	-0-	-0-				

- Notes 1/ Administrative Unit
SI = San Isabel National Forest
RG = Rio Grande National Forest
BLM = Bureau of Land Management Study Areas (Black Canyon, South Piney Creek, Papa Keal, Zapata Creek)
- 2/ M Acres = 1000 Acres
3/ MMBF = Million Board Feet
4/ CFL = Capable Forest Land, Also Referred to as Productive Forest Land
5/ AUM's = Animal Unit Months
6/ May have seasonal restrictions for wildlife
7/ Per Travel Management Plan
8/ MPAOT = 1000 People-AT-One-Time
9/ MRVD's = 1000 Recreation Visitor Days

SUMMARY OF WILDERNESS SUITABILITY EVALUATION

Chapter IV, describes in detail the wilderness suitability evaluation conducted for the Sangre de Cristo WSA and contiguous Bureau of Land Management WSAs. A finding of suitability or unsuitability considers the area's capability, availability, and need for wilderness. The following summary includes both National Forest System lands and lands administered by the Bureau of Land Management. The discussion of environmental consequences, Chapter IV, identifies the effects on National Forest System and Bureau of Land Management lands.

IS THE AREA CAPABLE OF WILDERNESS DESIGNATION?

Both physical characteristics and manageability of the area were evaluated. The Wilderness Attribute Rating for the Sangre de Cristo WSA as shown in Chapter III, indicates a high degree of wilderness character with a rating of 24.

Management for wilderness with the current WSA boundaries will create conflicts with use of patented mining claim inholdings. These conflicts can be reduced with the modified boundary alternative. Three topographically isolated tracts south of Medano Pass on the eastern side of the National Forest WSA will be difficult to manage as wilderness due to their small size, isolation, and proximity to lands with detracting uses and activities. Also, portions of the WSA will be difficult to manage as wilderness because they project from the main body of the area or are isolated by private inholdings. The manageability could be improved with the modified boundary alternative.

IS THE AREA AVAILABLE FOR WILDERNESS?

To address this criterion, the values of the area as wilderness and as nonwilderness were compared. Significant findings are shown below.

Mineral potential was considered. There is an indication from past claims, existing mines and patents, and geologic study that the area has potential to produce mineral resources.

Approximately 800 acres of patented lands are within the boundaries of the Wilderness Study Area consisting of about 140 acres on the San Isabel National Forest and 660 on the Rio Grande National Forest. Alternative 2, suitable with modified boundary, would include about 516 acres of patented lands, all within the Rio Grande portion.

Alternative 1 (Suitable) would isolate patented mining claims in the Black Canyon WSA (administered by the Bureau of Land Management). The modified boundary alternative excludes these claims.

The selection of Alternative 1 (suitable) would preclude the use of the suitable forest land to supply commercial forest products. Under Alternative 2, suitable with modified boundary, suitable forest land with slopes less than 45 percent with a long term sustained yield of 1.8 MMBF per year would be available. Alternatives 3 and 4, unsuitable, would allow utilization of this resource with a long term sustained yield of 3.8 MMBF on suitable forest lands on slopes less than 45 percent.

Although timber from the Wilderness Study Area is not needed specifically to meet anticipated demand as identified in the Forest Plan, the Sangre de Cristo WSA has the potential for increasing water yield. The potentials for increase are important for domestic and agricultural users both locally and downstream.

The Statewide Comprehensive Outdoor Recreation Plan for Regions 7, 8, and 13 recommends that the Forest Service place increased priority on picnicking, developed camping, four-wheel drive use, and day hiking on trails. Due to the steep terrain and difficult access, this WSA is not conducive to providing developed sites for picnicking or camping. Alternative 1 will preclude some four-wheel drive use on the WSAs administered by the Bureau of Land Management and the limited use of the Como Lake Road on the Rio Grande Forest. Alternative 2 will allow existing four-wheel drive use of parts of the Bureau of Land Management WSAs. Alternatives 3 and 4 will allow the limited four-wheel drive use to continue.

There is no apparent conflict between any of the alternatives and the Fremont, Huerfano, and Saguache County goals or policies. The Saguache County policies reflect an interest in the effects of wilderness designation on the local economy, recreation opportunities, and future mineral resource development. Custer and Alamosa Counties have not officially approved or adopted a plan, policy, or program dealing with wilderness.

Competing wildlife needs include winter range habitat maintenance and improvement and maintenance of habitat diversity. Big game winter range needs improvement and maintenance to meet the projected wildlife demands on the National Forests as indicated in the Colorado Division of Wildlife (DOW) Comprehensive Plans. The selection of Alternative 1 will preclude the needed habitat improvement and maintenance. Alternative 2 excludes about 8,400 acres of important habitat from the wilderness recommendation. Alternatives 3 and 4 would allow habitat improvement and maintenance on about 21,100 acres.

IS THE AREA NEEDED FOR WILDERNESS?

The Pike and San Isabel National Forests contain 257,080 acres of wilderness. Wildernesses with approximately 193,350 acres occur within 50 miles, 2,020,034 acres within 100 miles and 2,396,000 acres within 150 miles of this WSA. Wilderness is not locally available in southeastern Colorado. The suitable alternative or suitable alternative with modified boundary could help provide additional wilderness for southern and southeastern Colorado.

The WSA is not needed to improve the representation of landforms and ecosystems in the National Wilderness Preservation System. No threatened or endangered plant or wildlife species have been identified. No vegetative or wildlife species have been identified in the area that require a wilderness environment for survival. The existing Great Sand Dunes Wilderness which adjoins the Sangre de Cristo WSA is predominantly sand dunes and represents a desert ecosystem not duplicated by this Study Area.

CHAPTER III

AFFECTED ENVIRONMENT

The suitability or unsuitability of the Sangre de Cristo WSA for wilderness is a function of the physical, social, and economic environment within and surrounding the WSA. This chapter describes the various environmental factors related to this suitability determination. Chapter IV describes the anticipated effects on the environment resulting from implementation of the alternatives.

The material in this section relates to National Forest System lands on the San Isabel and Rio Grande National Forests with a summarization of material relating to the lands administered by the Bureau of Land Management. The Bureau of Land Management material is discussed in detail in the Management Situation Analysis in Appendix A of this section.

PHYSICAL SETTING

PHYSIOGRAPHY

The Sangre de Cristo WSA is composed of a rugged and very steep physical environment lying along the sharp and narrow Sangre de Cristo Mountain Range of southeast Colorado. Elevations vary from 14,345 feet at the crest of Blanca Peak to as low as 8,200 feet along the boundary. The slopes are extremely steep from the crest of the mountain range to the floor of the Wet Mountain Valley to the east and the San Luis Valley to the west. Deep narrow canyons extend from the crest outward to the valleys. The western slope of the WSA is less steep but also has deep narrow drainages. As the slopes merge into the valley bottoms they become less steep and more accessible. Many of the narrow canyons originate in steep walled cirque basins with small but attractive lakes.

The WSA contains five peaks exceeding 14,000 feet in elevation including Blanca, Little Bear, Crestone, Crestone Needle, and Humbolt Peaks, and a number of others which exceed 13,000 feet.

GEOLOGY AND SOILS

The Sangre de Cristo WSA includes the central portion of the Sangre de Cristo Mountains which extend about 150 miles from the Arkansas River near Salida, southward into New Mexico. The central portion of this range is composed largely of red late-Paleozoic sediments. These rocks are intricately folded and faulted, but not metamorphosed. They include sandstones, shale, conglomerates, and fossil bearing limestones. The northern end of the range is formed of precambrian igneous and metamorphic rocks. Mount Blanca, at the southern tip of the study area, consists of huge blocks of precambrian granite which were pushed upward and thrust westward to form a cluster of peaks, several over 14,000 feet in elevation. Many prominent rock glaciers are present in the Sangre de Cristo Mountains. These are composed of fragments of rock which creep almost imperceptibly down the steep flanks of the high peaks. Significant geologic hazards exist on the steeper slopes throughout most of the

area. Only upon the more gentle slopes, primarily along the lower perimeter of the study area, do geologic hazards become moderate. Under present conditions soil erosion and suspended sediment production are within acceptable limits. A wide range of soil conditions exist in the WSA but generally they are moderate in inherent fertility and erosion hazard. Some of the more fertile soils are reflected in the areas of high productivity for potential timber management along the lower slopes on the east side. Mass movement potential is apparent in the slide rock areas.

CLIMATE

The climate of the study area is characterized by warm summers and cold winters. Temperatures have a wide seasonal variation with monthly averages from less than 20°F in January to 65°F or more in August. At the higher elevations (above 10,000 feet), frost can occur during any month. Weather conditions can change dramatically with the movement of weather systems. For example, warm, sunny weather can change to cold, rainy, or snowy conditions with high winds in a few hours.

Average precipitation in the Sangre de Cristo Wilderness Study Area varies both by elevation and by aspect on the eastern and western slopes of the mountain range. Generally, average precipitation on the western slope varies from 14 inches at lower elevations to 40 inches at the higher elevations. Average precipitation on the eastern slope varies from 26 inches at lower elevations to over 30 inches at higher elevations. Approximately 60 to 90 percent of the annual precipitation occurs as snowfall. The snow pack usually begins to melt in May, however, some areas are not completely free of snow until July. Snow usually returns in late October.

VEGETATION

Alpine vegetation occurs along the crest of the mountain range with spruce-fir, Douglas-fir, and ponderosa pine at lower elevations. Approximately 17 percent of the western slope of the Sangre de Cristo WSA is forested. The nonforested area consists of rock, alpine, and brushland vegetation. The eastern side of the range is predominantly forested with about 28 percent of the area in a nonforested condition. These forested areas generally occur along the lower elevations adjacent to the eastern WSA boundary. Riparian vegetation occurs as narrow stringers adjacent to the perennial streams and willow fields in the cirque basins.

A fescue-mountain muhly prairie grassland ecosystem was identified along the western edge of the WSA in RARE-II as unique, considering lack of representation in other study areas or wilderness. This grass type exists in many areas through south central Colorado but is not a prominent feature of the WSA. The steep lower slopes of the WSA where the type occurs do not appear to be typical examples of the ecosystem.

RESOURCE AND SUPPORT ELEMENTS

WILDERNESS

The National Wilderness Preservation Act of 1964, defines a wilderness as an area of undeveloped federally owned land, designated by Congress, that has the following characteristics:

- It is affected primarily by the forces of nature, where man is a visitor who does not remain. It may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.
- It possesses outstanding opportunities for solitude or a primitive and unconfined type of recreation.
- It is an area large enough so that continued use will not change its unspoiled, natural condition.

Wilderness Attribute Rating System

A Wilderness Attribute Rating System (WARS) was developed for RARE II to provide an indication of an area's potential for wilderness. The ratings considered characteristics from the 1964 Wilderness Act and included natural integrity, apparent naturalness, opportunities for solitude, and opportunities for a primitive and unconfined recreation experience. In addition, supplemental attributes including ecological, geological, or other features of scientific, education, scenic, or historical value were considered. Each of these attributes can be given a rating value from 1 to 7, with 7 being the most valuable. The combined possible rating could be from 4 to 28.

The study area has a moderate to high degree of natural integrity. There are a number of features including primitive constructed roads, trails, mines and mineral prospects, fences, ditches, and old cabins within the area. However, many of those are relatively minor or may be excluded by boundary modification. Impacts on natural integrity are shown in Figure III-1.

Screening by vegetation and topography along with the overall size gives the study area a high rating in opportunity for solitude except in a few of the heavily used areas which are most popular for visitors. The most heavily used areas center on the high elevation lakes including Stout Creek, Brush Creek, Cherry, Lake of the Clouds, Rito Alto, Venable, Comanche, North Crestone, South Crestone, South Colony, Sand Creek, and Blue Lakes to name a few. Many of these are at or near timberline with little screening. Accessible areas near the Great Sand Dunes National Monument such as Mosca Creek also receive very heavy recreation use with limited screening.

The study area³ offers several activity opportunities along with moderate challenge because of rugged terrain. Those features along with the absence of recreation facilities except for trails give the area a moderate to high rating for primitive and unconfined recreation.

This rating is summarized as follows:

	<u>Rating</u>
Influence of impacts on natural integrity	6
Influence of impacts on apparent naturalness	6
Opportunities for solitude	5
Opportunities for unconfined recreation	5

Scale of 1 to 7 with 7 being the most favorable for wilderness.

TOTAL WARS RATING	22
REGIONALY ADJUSTED RATING	24

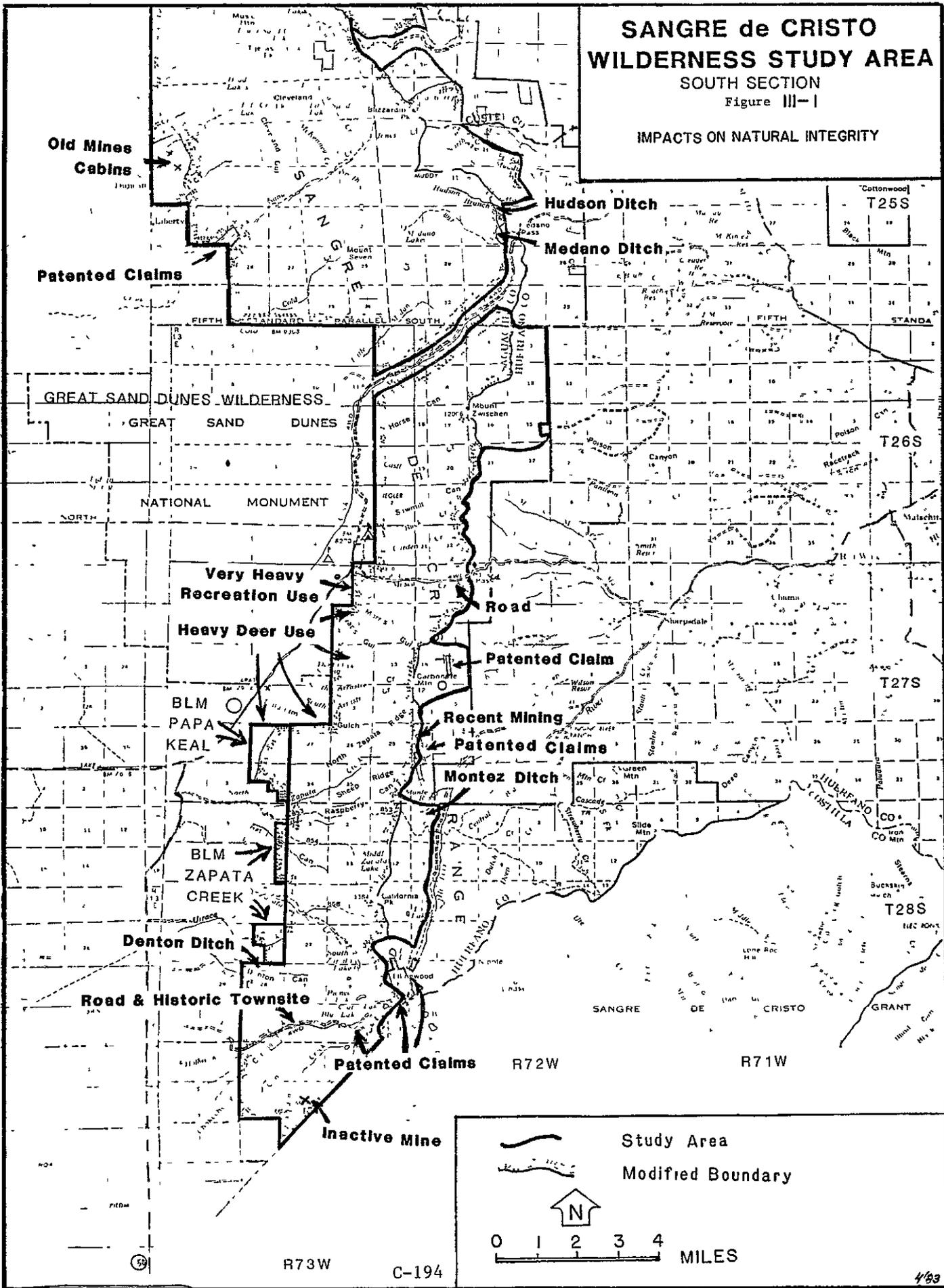
The WARS ratings, as determined by the Forests involved, were reviewed at the Regional level and some adjustments were made to provide uniformity in ratings within the Rocky Mountain Region of the Forest Service. As a result of this process, the WARS rating for the Sangre de Cristo WSA was raised to 24 as shown in the RARE II FEIS of January 1979. The Bureau of Land Management, Management Situation Analysis did not use a numerical rating, but it indicates that the four WSA's have wilderness characteristics including lack of improvements, and development over much of their area.

In addition to the WARS rating, the area was rated for supplementary attributes which included the following items:

- Endangered or threatened species of animals, insects, and plants.
- Special ecological features
- Special geological features
- Scenic values
- Cultural features

A wilderness may contain ecological, geological, or other features of scientific, educational, scenic, or historical value. A special ecological feature identified for the area is the occurrence of a number of ecosystems ranging from pinyon-juniper at the lower elevations to alpine at the higher elevations within a short horizontal distance. Special geologic features are five peaks; Blanca, Little Bear, Crestone, Crestone Needle, and Humbolt Peaks over 14,000 feet in elevation. Spanish Cave on Marble Mountain is the Nation's highest known limestone or marble cave at over 12,000 feet. Scenic values of the study area are rated outstanding. Cultural features in the area are old cabins, travel routes, and mining developments. The Como Lake Mining Camp area is an example of historic activity in the area. The overall rating for the supplemental values was 4, or outstanding.

**SANGRE de CRISTO
WILDERNESS STUDY AREA**
SOUTH SECTION
Figure III-1
IMPACTS ON NATURAL INTEGRITY



Old Mines Cabins

Patented Claims

GREAT SAND DUNES WILDERNESS

GREAT SAND DUNES

NATIONAL MONUMENT

Very Heavy Recreation Use

Heavy Deer Use

BLM PAPA KEAL

BLM ZAPATA CREEK

Denton Ditch

Road & Historic Townsite

Inactive Mine

Hudson Ditch

Medano Ditch

Road

Patented Claim

Recent Mining

Patented Claims

Montez Ditch

Patented Claims

Study Area

Modified Boundary



0 1 2 3 4 MILES

R73W

C-194

Geographic Distribution of Wilderness

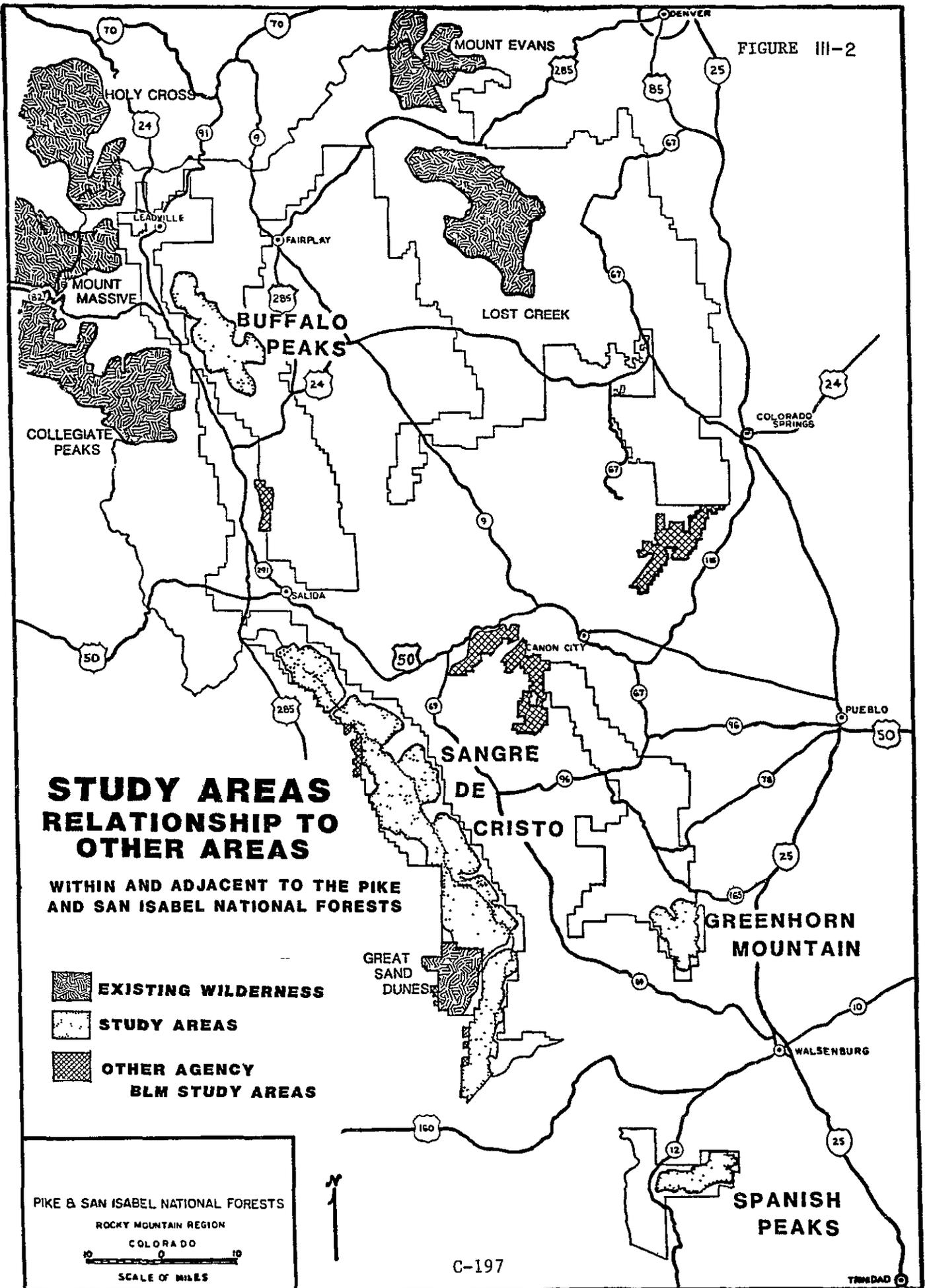
The Sangre de Cristo WSA is adjacent to the Great Sand Dunes Wilderness within the Great Sand Dunes National Monument which is administered by the National Park Service. The Sangre de Cristo WSA does not duplicate the desert ecosystem of the sand dunes. Figure III-2 shows the relationship of this WSA to nearby wilderness within and adjacent to the Pike and San Isabel National Forests. Within 150 airline miles are other wildernesses as shown on Table III-A. Together, those areas offer a wide variety of recreation opportunity, terrain, vegetative types, and scenic quality within one-half day's driving time.

TABLE III-A

WILDERNESS WITHIN 150 MILES OF
THE SANGRE DE CRISTO WSA

<u>Wilderness</u>	<u>Pike and San Isabel National Forests Acres (net)</u>	<u>Other National Forests (net)</u>	<u>Other Agency (net)</u>
<u>Within 50 Miles</u>			
Collegiate Peaks	81,450	78,450	-0-
Great Sand Dunes (NPS)	-0-	-0-	33,450
Sub Total	81,450	78,450	33,450
<u>Within 100 Miles</u>			
South San Juan	-0-	133,463	-0-
La Garita	-0-	108,486	-0-
Lost Creek	106,000	-0-	-0-
Mount Massive	26,000	-0-	-0-
Hunter-Fryingpan	-0-	74,450	-0-
Weminuche	-0-	463,224	-0-
Big Blue	-0-	97,700	-0-
West Elk	-0-	194,412	-0-
Raggeds	-0-	68,000	-0-
Maroon Bells - Snowmass	-0-	174,060	-0-
Holy Cross	8,960	107,580	-0-
Eagles Nest	-0-	133,688	-0-
Mount Evans	34,670	38,330	-0-
Chama River Canyon	-0-	50,260	-0-
Cruces Basin	-0-	18,000	-0-
Latir Peak	-0-	20,000	-0-
Wheeler Peak	-0-	19,661	-0-
Sub Total	175,630	1,651,054	-0-
<u>Within 150 Miles</u>			
Lizard Head	-0-	40,000	-0-
Mount Sneffels	-0-	16,200	-0-
Pecos	-0-	223,333	-0-
San Pedro Parks	-0-	41,132	-0-
Dome	-0-	5,200	-0-
Sub Total	-0-	376,125	-0-
TOTAL	257,080	2,105,629	33,450
TOTAL WILDERNESS = 2,396,159 ACRES			

FIGURE III-2

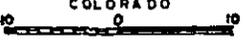


**STUDY AREAS
RELATIONSHIP TO
OTHER AREAS**

WITHIN AND ADJACENT TO THE PIKE
AND SAN ISABEL NATIONAL FORESTS

-  **EXISTING WILDERNESS**
-  **STUDY AREAS**
-  **OTHER AGENCY
BLM STUDY AREAS**

PIKE & SAN ISABEL NATIONAL FORESTS
ROCKY MOUNTAIN REGION
COLORADO



SCALE OF MILES

MINERALS

The Sangre de Cristo WSA contains evidence of past and present mining activity. Past mining activity has been concentrated in the southern end of the area from Mosca Pass to Blanca Peak and in the northern end, north of Hayden Pass. There are thirteen pending mineral lease applications as of July 20, 1984, covering about 24,930 acres of the WSA see Figure III-3.

The study area contains several small mineralized zones with moderate resource potential for locatable minerals. Approximately 27 percent of the area has high or moderate potential for locatable minerals. The area with high potential is generally at the northwestern end of the study area. Recent exploration activity has occurred along much of the lower elevation areas on the eastern side of the range. Exploration on the western side of the range occurs from the lowest elevation areas to the crest of the mountains with the majority of the claims located between Hayden Pass and Crestone Peak. There are 684 unpatented claims on the Rio Grande National Forest portion.

There are several old mining districts in the western half of the Sangre de Cristo Range. The Orient Mining District, an old iron mining area, is located east of Villa Grove. In addition to the Orient Mine, there is an iron ore deposit on Major Creek. The Steel Gulch Marble deposit lies north of the district in Steel Canyon. The Blake Mining District located approximately five miles northwest of Rito Alto Peak has produced gold, silver, copper, and lead. A total of \$2000 worth of minerals were mined from 1934 to 1939.

The Crestone Mining District is centered around the town of Crestone east of Moffat. Gold mineralization is found in veins along shear zones in Precambrian rocks. A total of \$47,000 worth of gold, silver, copper and lead was produced during the 1930's. Silver, copper, lead, and gold have been mined in the Music Mining District. This area is located east of Liberty and Luis Maria Baca No. 4 Grant. At the southern end of the Sangre de Cristo Range is the Blanca Mining District. Gold was mined in this district from small veins that are traceable to the north for up to two miles in granites and metamorphics. Trial shipments of ore were made in 1928 and 1934. There are no operations in any of these mining districts today.

There are several other commodities and areas of interest in the Sangre de Cristo Range. A molybdenum occurrence is located around Cottonwood Peak. A second occurrence is a pegmatite on the east side of Mosca Pass. A beryllium pegmatite has been mapped east of Crestone. Rare earth minerals are found east of Villa Grove near Hayden Pass and east of Crestone in pegmatites, and consist of euxenite, cyrtolite, and monazite.

Uranium occurs along the east flank of the Sangre de Cristo Range in mildly metamorphosed sandstones and mudstones of Permian and Pennsylvania age. Prospects have been found north and east of Crestone. A known bedded deposit exists in the Crestone Needles area. The mineralization is in upper Paleozoic sediments probably as lenticular

masses concordant with the bedding planes. Several vein deposits of fluorspar have been mapped. They are the Beryl property west of Rito Alto Peak, the Liberty Deposit on Sand Creek, and the Poncha Pass Deposit.

A small area of probable geothermal resource potential exists on the west side of the study area near Poncha Springs. There appears to be low potential for the occurrences of oil and gas resources within the study area.

The U.S. Geological Survey and U.S. Bureau of Mines completed a mineral investigation of the Sangre de Cristo Wilderness Study Area. A copy of the report is found in Appendix I of the Forest Plan.

This information is generally comparable with the RARE II ratings which estimated a rating of 90 for the occurrence of hardrock minerals, a 10 for oil and gas, a 99 for the occurrence of uranium, and a rating of 95 for geothermal resources, based on a rating scale of 0 to 100.

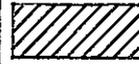
The BLM Management Situation Analysis, Appendix A, shows that no economically productive mineral deposits are known to exist within the Bureau of Land Management WSAs. There is a possibility that mineral resources may be present.

Table III-A and the Mineral Potential Map, Figure III-4, shows mineral information obtained from existing records and preliminary U.S. Bureau of Mines information.

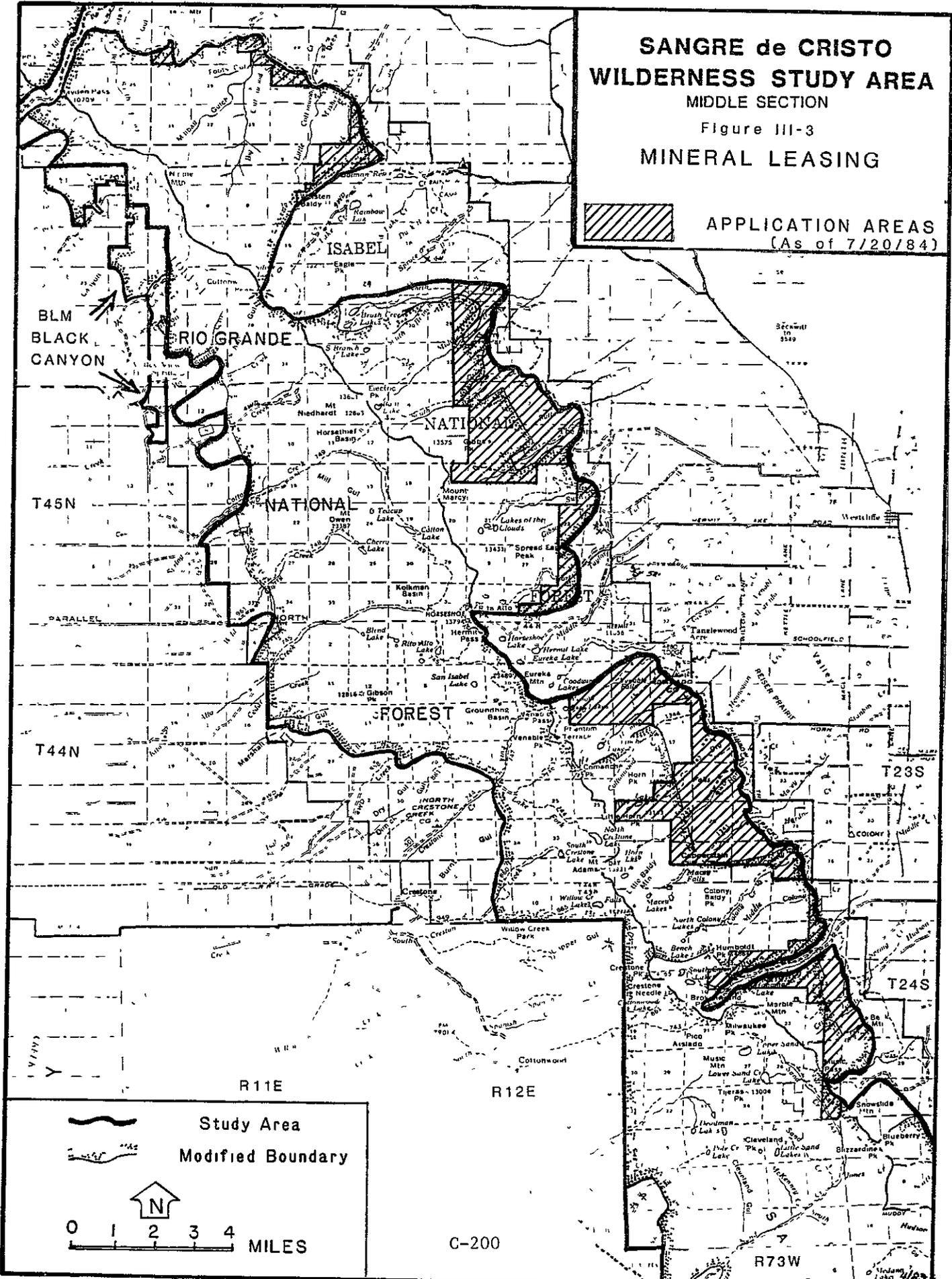
TABLE III-A
Mineral Potential

	<u>Acres</u> <u>(thousands)</u>
	218.0
Moderate to high potential for locatable minerals.	60.3
Moderate to high potential for leasable minerals.	0.0
Low potential for locatable minerals.	157.7
Low potential for leasable minerals.	218.0
Mineral rights reserved.	0.4
Withdrawn from mineral entry.	3.1

**SANGRE de CRISTO
WILDERNESS STUDY AREA
MIDDLE SECTION**
Figure III-3
MINERAL LEASING



APPLICATION AREAS
(As of 7/20/84)



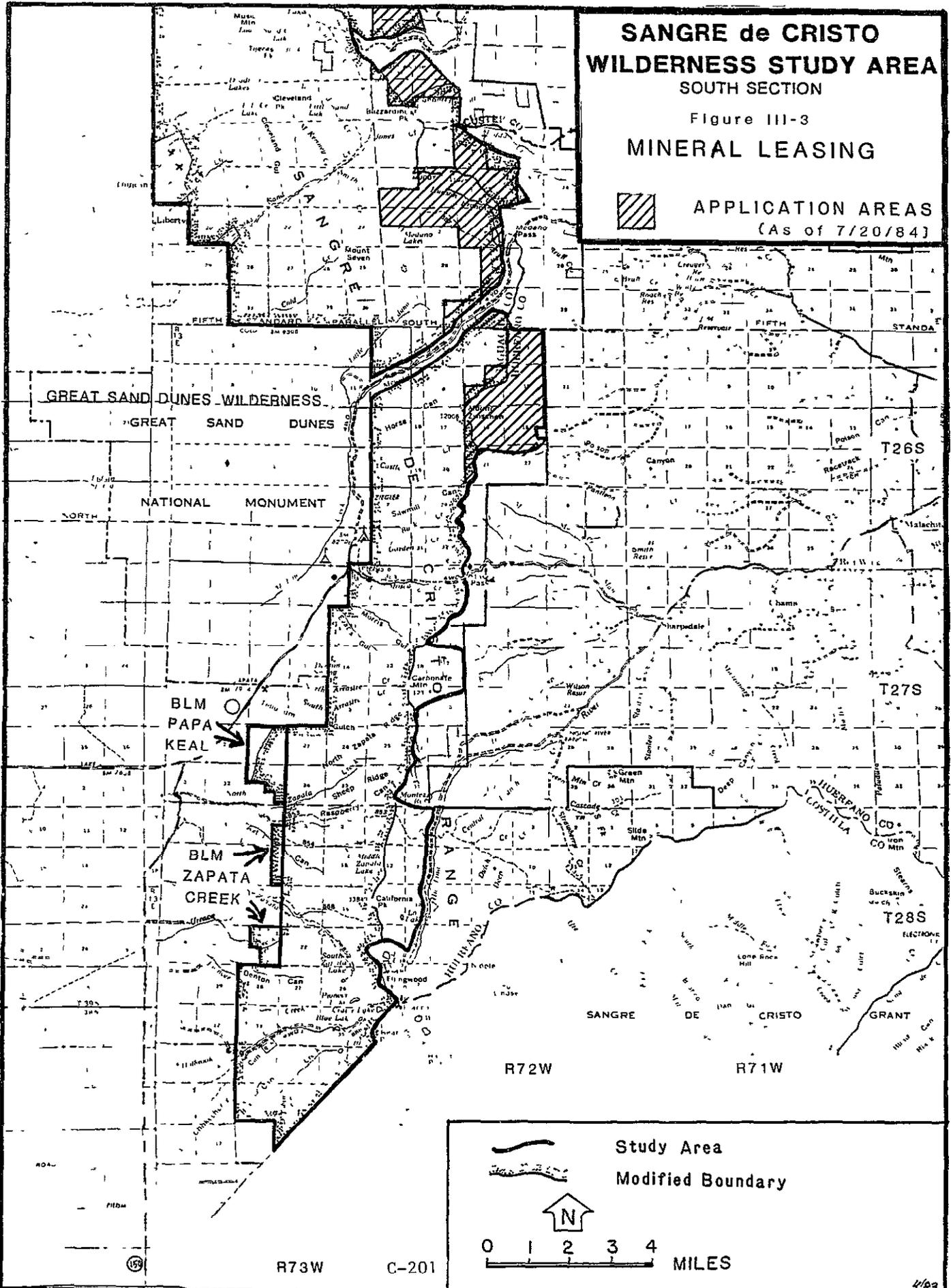
C-200

R73W

SANGRE de CRISTO WILDERNESS STUDY AREA SOUTH SECTION

Figure III-3
MINERAL LEASING

 APPLICATION AREAS
(As of 7/20/84)



198

R73W C-201

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SANGRE de CRISTO WILDERNESS STUDY AREA

NORTH SECTION

Figure III-4

MINERAL POTENTIAL



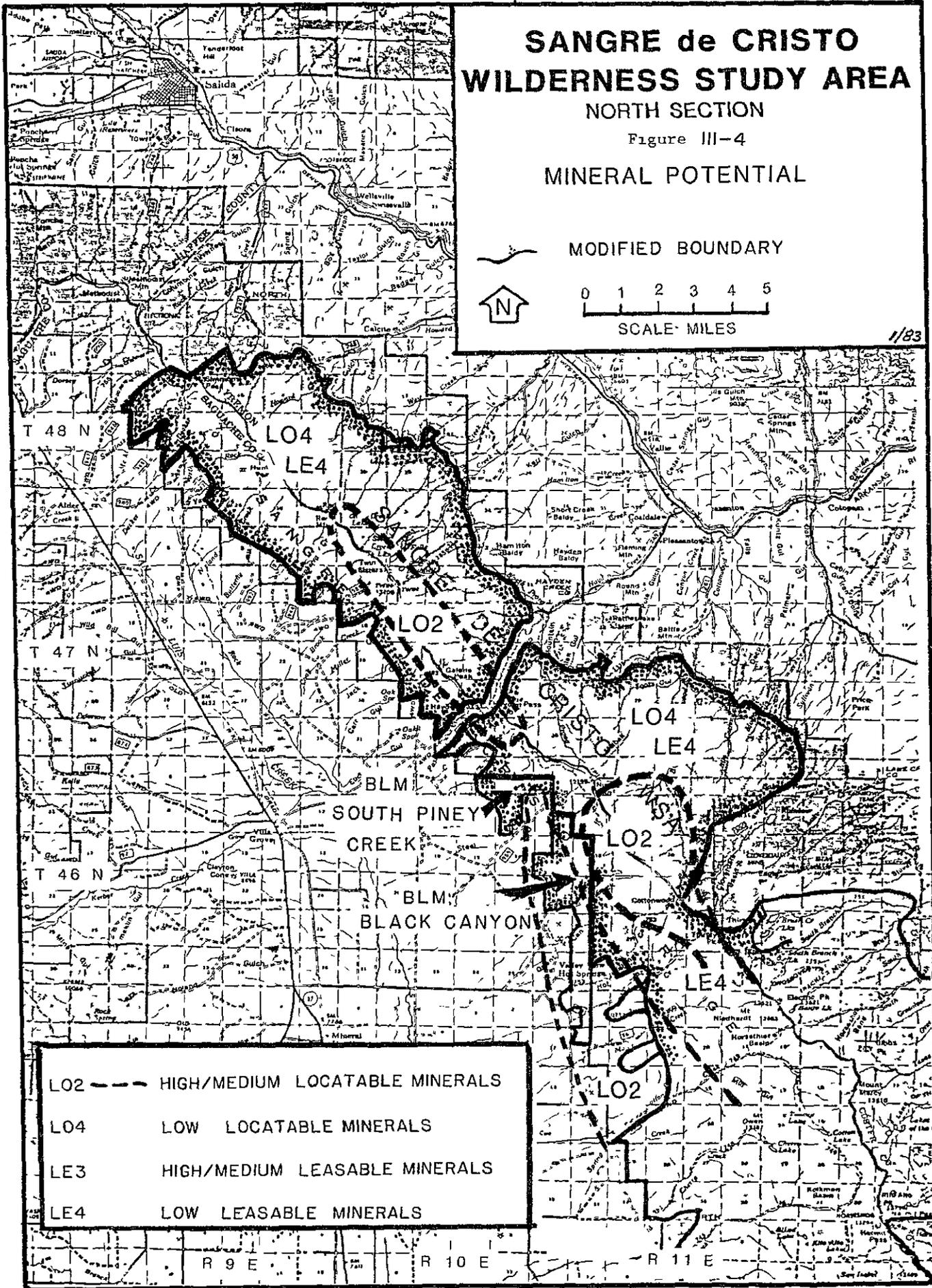
MODIFIED BOUNDARY



0 1 2 3 4 5

SCALE - MILES

1/83



- LO2 --- HIGH/MEDIUM LOCATABLE MINERALS
- LO4 LOW LOCATABLE MINERALS
- LE3 HIGH/MEDIUM LEASABLE MINERALS
- LE4 LOW LEASABLE MINERALS

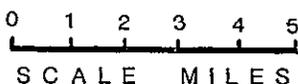
SANGRE de CRISTO WILDERNESS STUDY AREA

MIDDLE SECTION

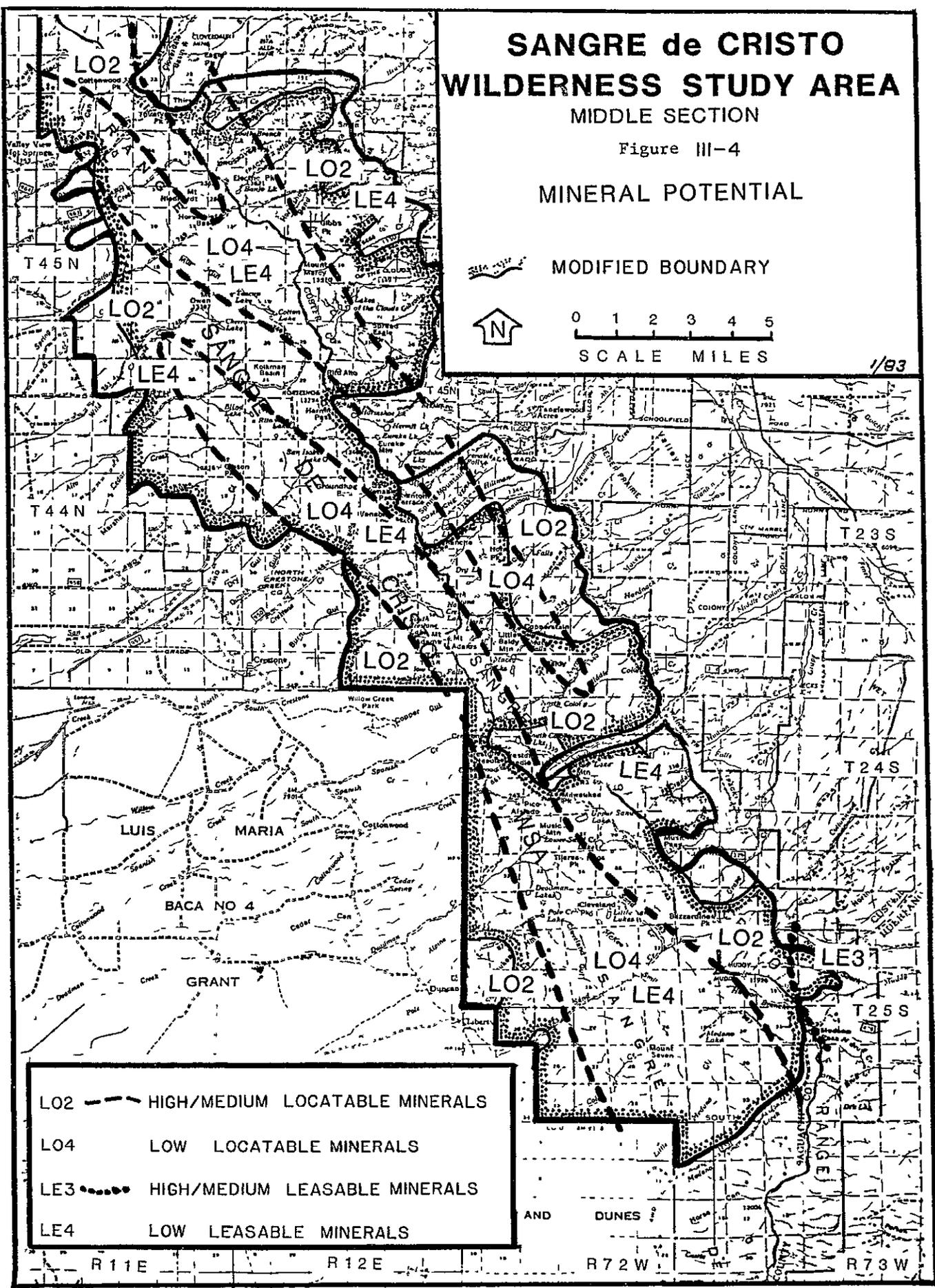
Figure III-4

MINERAL POTENTIAL

MODIFIED BOUNDARY



1/83



- LO2 - - - HIGH/MEDIUM LOCATABLE MINERALS
- LO4 _____ LOW LOCATABLE MINERALS
- LE3 HIGH/MEDIUM LEASABLE MINERALS
- LE4 - . - . - . LOW LEASABLE MINERALS

SANGRE de CRISTO WILDERNESS STUDY AREA

SOUTH SECTION

Figure III-4

MINERAL POTENTIAL



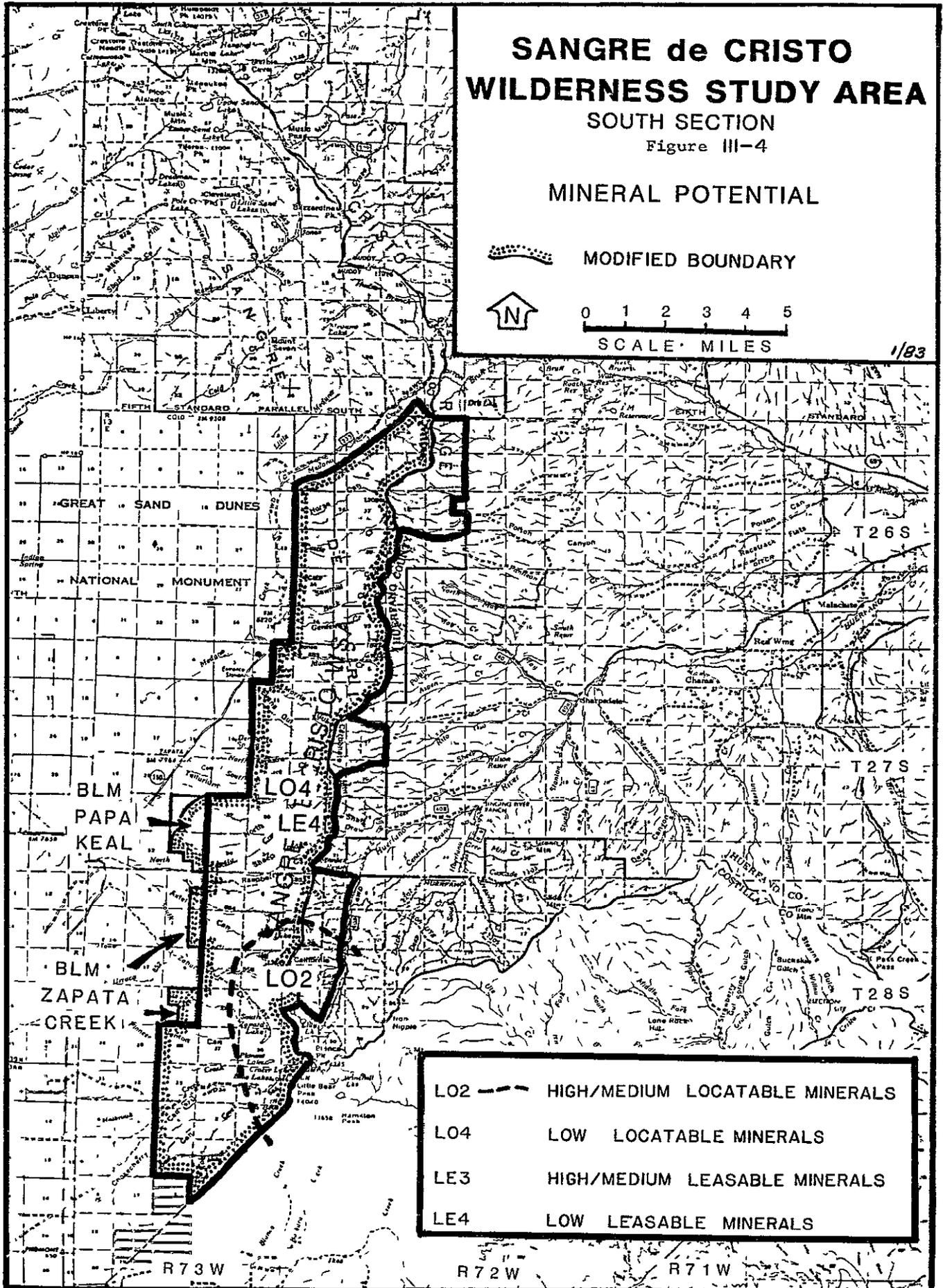
MODIFIED BOUNDARY



0 1 2 3 4 5

SCALE MILES

1/83



LO2	---	HIGH/MEDIUM LOCATABLE MINERALS
LO4	—	LOW LOCATABLE MINERALS
LE3	...	HIGH/MEDIUM LEASABLE MINERALS
LE4	-·-	LOW LEASABLE MINERALS

TIMBER

Most of the timber in the study area is mature (conifer sawtimber and aspen poletimber). Other stands with pole-size trees, seedlings/saplings, or understocked areas are also present. Most of these areas are probably the result of fires in the early 1900's. Aspen, Engelmann spruce, ponderosa pine, Douglas-fir and lodgepole pine are the predominant forest types in the area. Bristlecone pine, limber pine, pinon pine-juniper and several nonforest types (alpine tundra, dwarf willows, montane meadow, Gambel oak, Krummholz, and rock) are also present.

Most of the study area has been logged or had some timber cutting in the past. Most of this occurred in conjunction with homesteading and provided house logs, corral poles, and fence posts. Cutting for mine props, railroad ties, bridge timbers, and charcoal provided raw materials for mining and commerce. Many of the steeper slopes were logged with horses and the material removed on low-standard wagon roads.

The WSA includes approximately 218,000 acres, of which 25 percent is forest land capable of producing timber products (Table III-C). Approximately 49 percent of the suitable land base is on slopes less than 45 percent and capable of being logged with conventional harvesting systems. See Figure III-5.

TABLE III-C
FOREST LAND CLASSIFICATION
(1,000 Acres)

<u>Classification</u>	<u>Total Area</u>	<u>San Isabel</u>	<u>Rio Grande</u>
Total Area	217.9	87.2	130.7
	55.0	43.7	11.3
Tentatively Suitable Conventional Logging Slopes less than 45%:	26.9	26.1	0.8
Tentatively Suitable Slopes greater than 45%:	28.1	17.6	10.5
Note Suitable:	31.6	19.5	12.1
Nonforested and Other Unsuitable:	131.4	24.1	107.3

Suitable forest land in the WSA has moderate to high productivity for growing trees. An area with especially high productivity is the zone at the base of the mountains where depositional processes have resulted in deep, fertile, and moderate to fine-textured soils. Most of this area is incorporated in the lower elevation portion of the WSA. The area above this zone is in the low or moderate productivity classes.

The current (based on current growth) annual allowable sale quantity is 728,000 cubic feet (2,344,000 board feet) for suitable forest land on slopes of 45 percent or less. Growing stock volume is about 270.7 million board feet.

SANGRE de CRISTO WILDERNESS STUDY AREA

NORTH SECTION FIGURE III-5

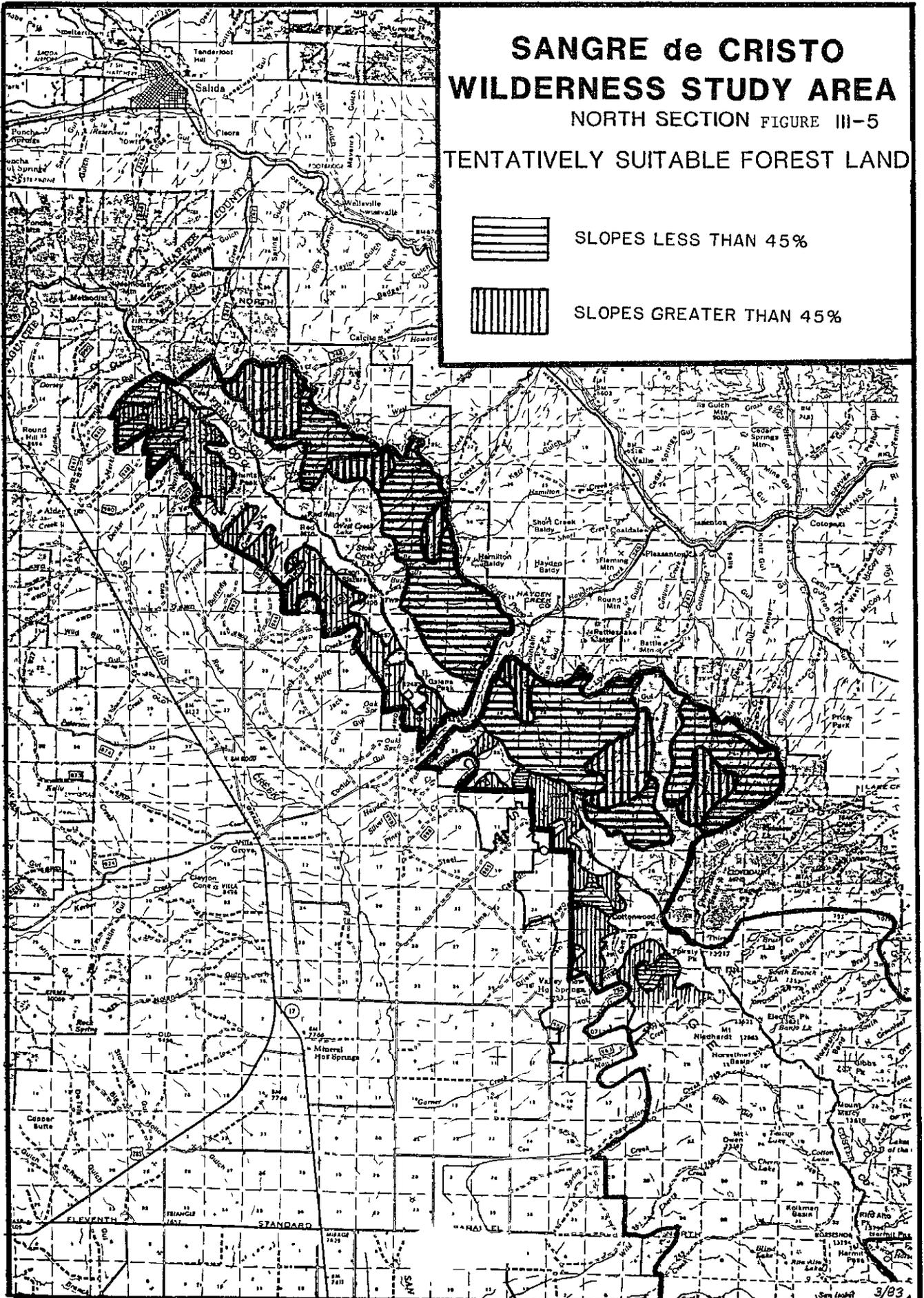
TENTATIVELY SUITABLE FOREST LAND



SLOPES LESS THAN 45%

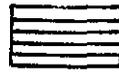


SLOPES GREATER THAN 45%



SANGRE de CRISTO WILDERNESS STUDY AREA

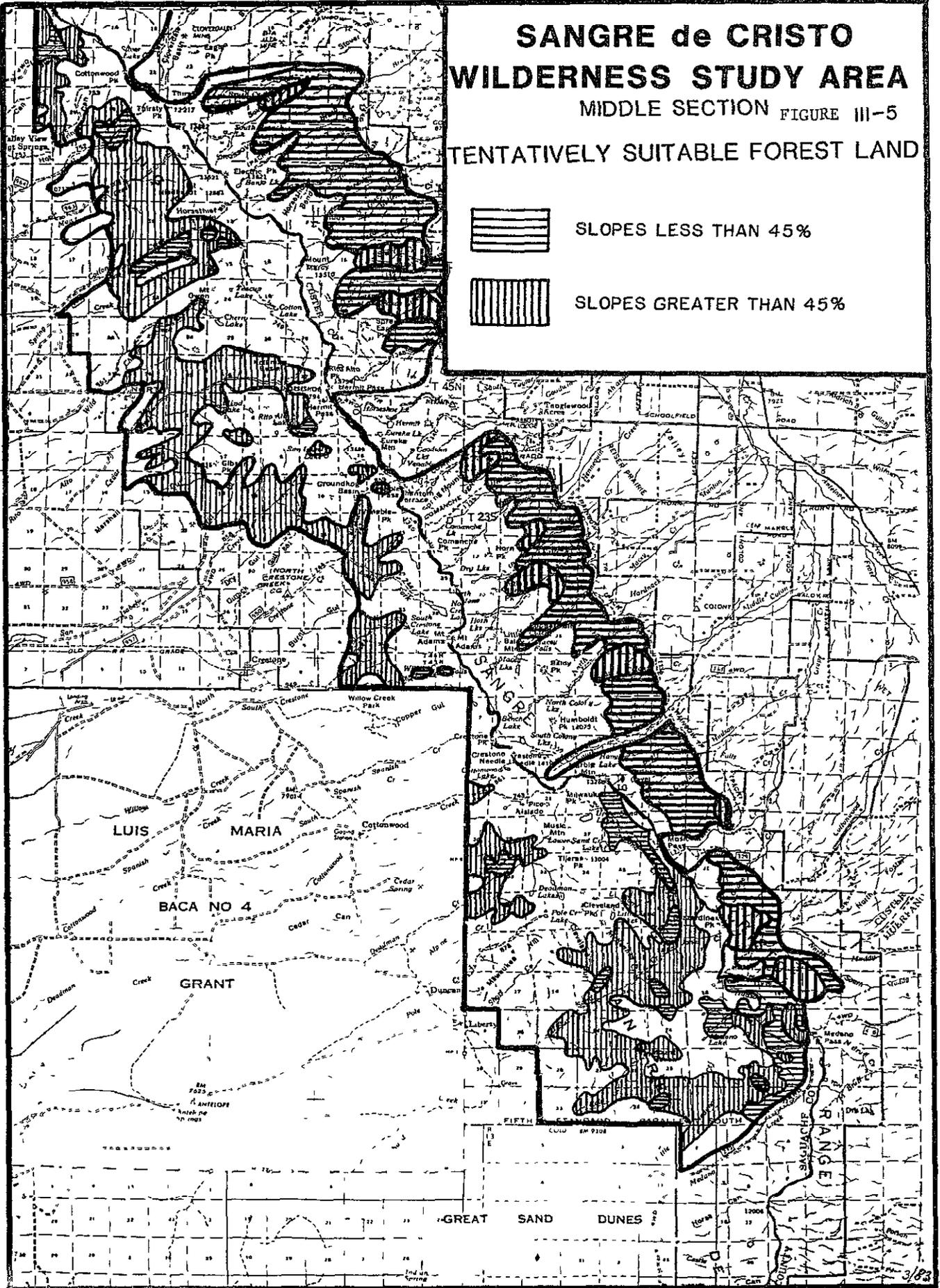
MIDDLE SECTION FIGURE III-5
TENTATIVELY SUITABLE FOREST LAND



SLOPES LESS THAN 45%



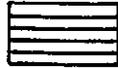
SLOPES GREATER THAN 45%



SANGRE de CRISTO WILDERNESS STUDY AREA

SOUTH SECTION FIGURE III-5

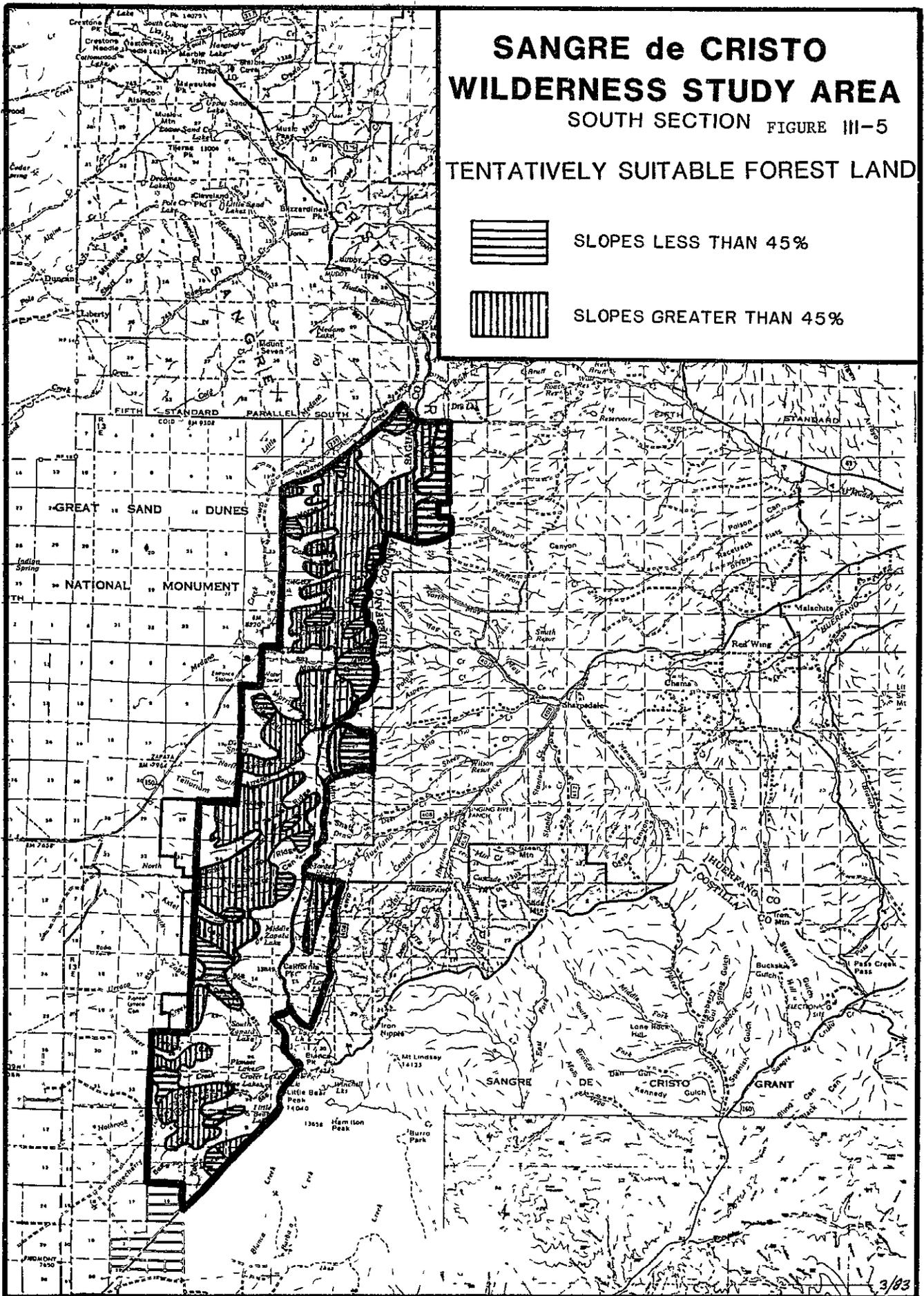
TENTATIVELY SUITABLE FOREST LAND



SLOPES LESS THAN 45%



SLOPES GREATER THAN 45%



3/83

The long-term sustained yield capacity (based on a managed forest) is 2,330,000 cubic feet (11,795,000 board feet) annually for the total area of suitable forest land. Of this amount, 1,142,000 cubic feet (5,760,000 board feet) pertains to suitable forest land on slopes less than 45 percent. This material could be in the form of sawlogs, fuelwood, or other roundwood products.

There have been timber sale activities in some of the WSAs on lands administered by the Bureau of Land Management. However, all of the areas have been excluded from timber harvest because of unsuitability due to steep slopes and rocky terrain.

PROTECTION

Air Quality

The Wilderness Study Area, is classified as a Class II area under Section 162(b) of the Clean Air Act, as amended in August 1977. Current air quality meets or exceeds these standards.

Fire

The Sangre de Cristo WSA is not an area of high fire occurrence. Because of the extensive visibility, fires are generally detected early before becoming large. However because of the rugged terrain and susceptibility or exposure to winds there is the potential for occasional large fires. Potential threat to private property or values outside the WSA is generally considered low.

Forest Pest Management.

Overmature ponderosa pine in the study area has been attacked by the mountain pine beetle in recent years. This pest is still active, although not currently epidemic.

Western spruce budworm is active in Douglas-fir-white fir stands throughout the area. Defoliation has been severe in some stands and is expected to remain severe or increase in the near future. See Figure III-6.

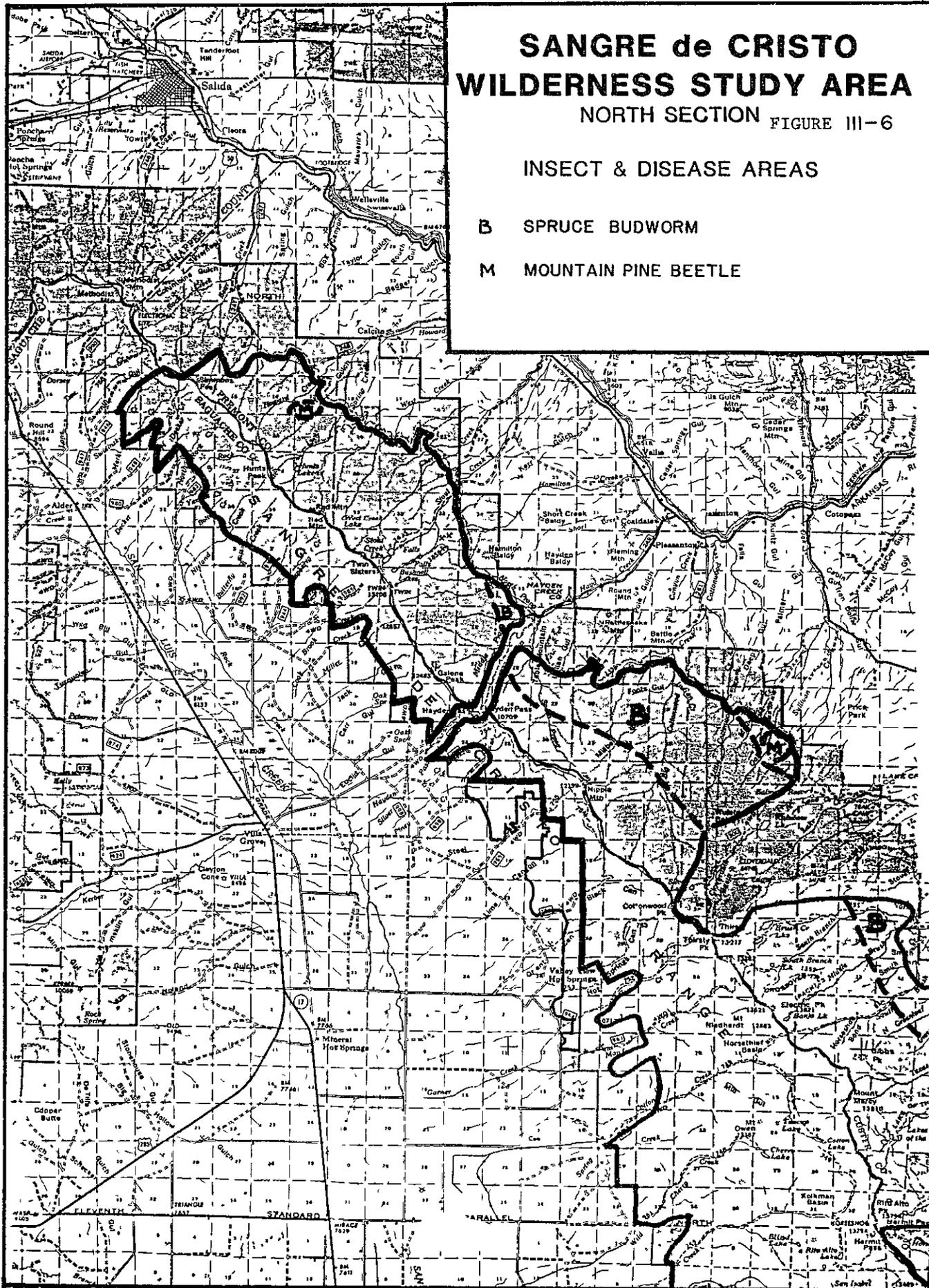
SANGRE de CRISTO WILDERNESS STUDY AREA

NORTH SECTION FIGURE III-6

INSECT & DISEASE AREAS

B SPRUCE BUDWORM

M MOUNTAIN PINE BEETLE

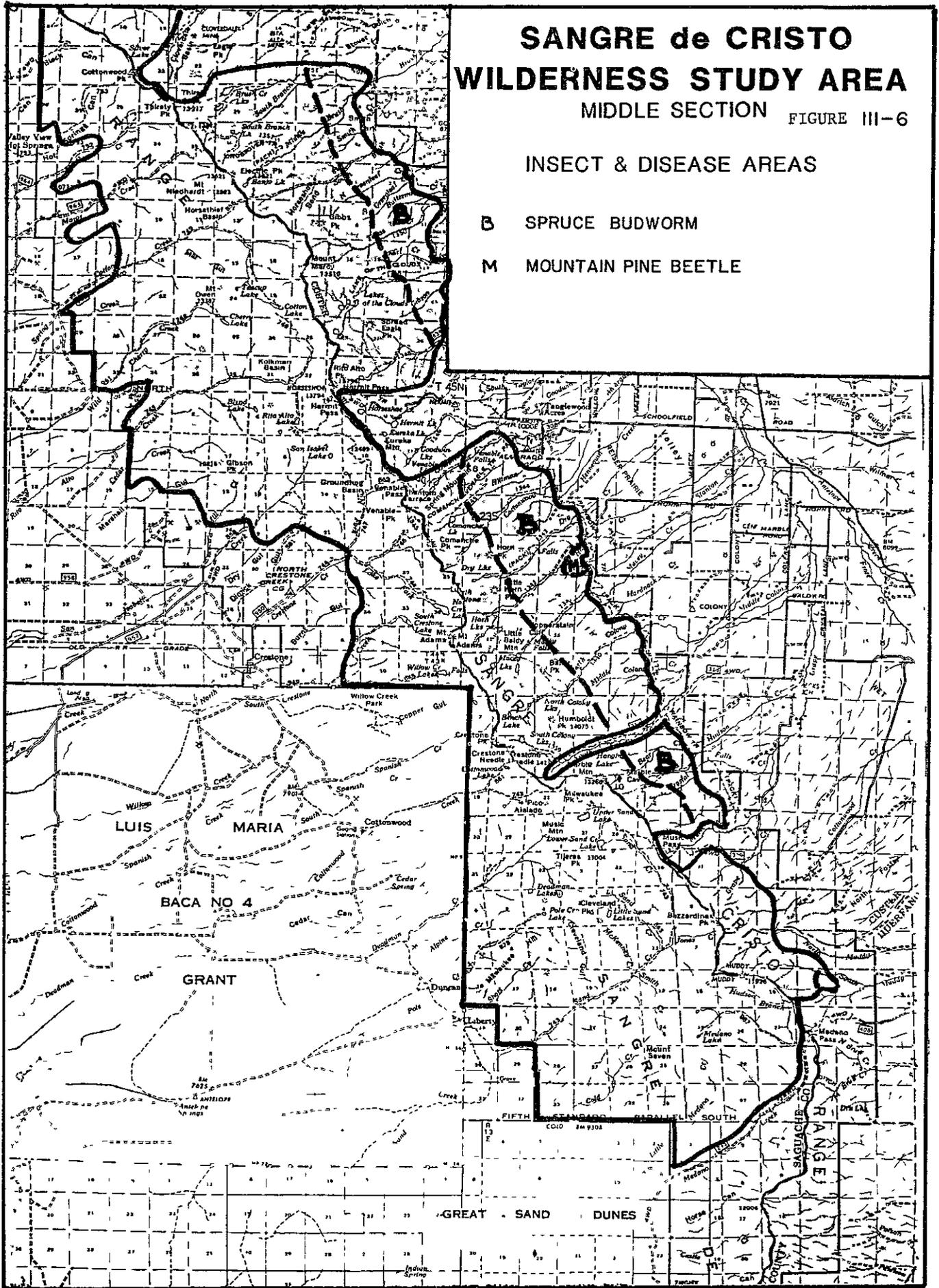


SANGRE de CRISTO WILDERNESS STUDY AREA

MIDDLE SECTION FIGURE III-6

INSECT & DISEASE AREAS

- B SPRUCE BUDWORM
- M MOUNTAIN PINE BEETLE

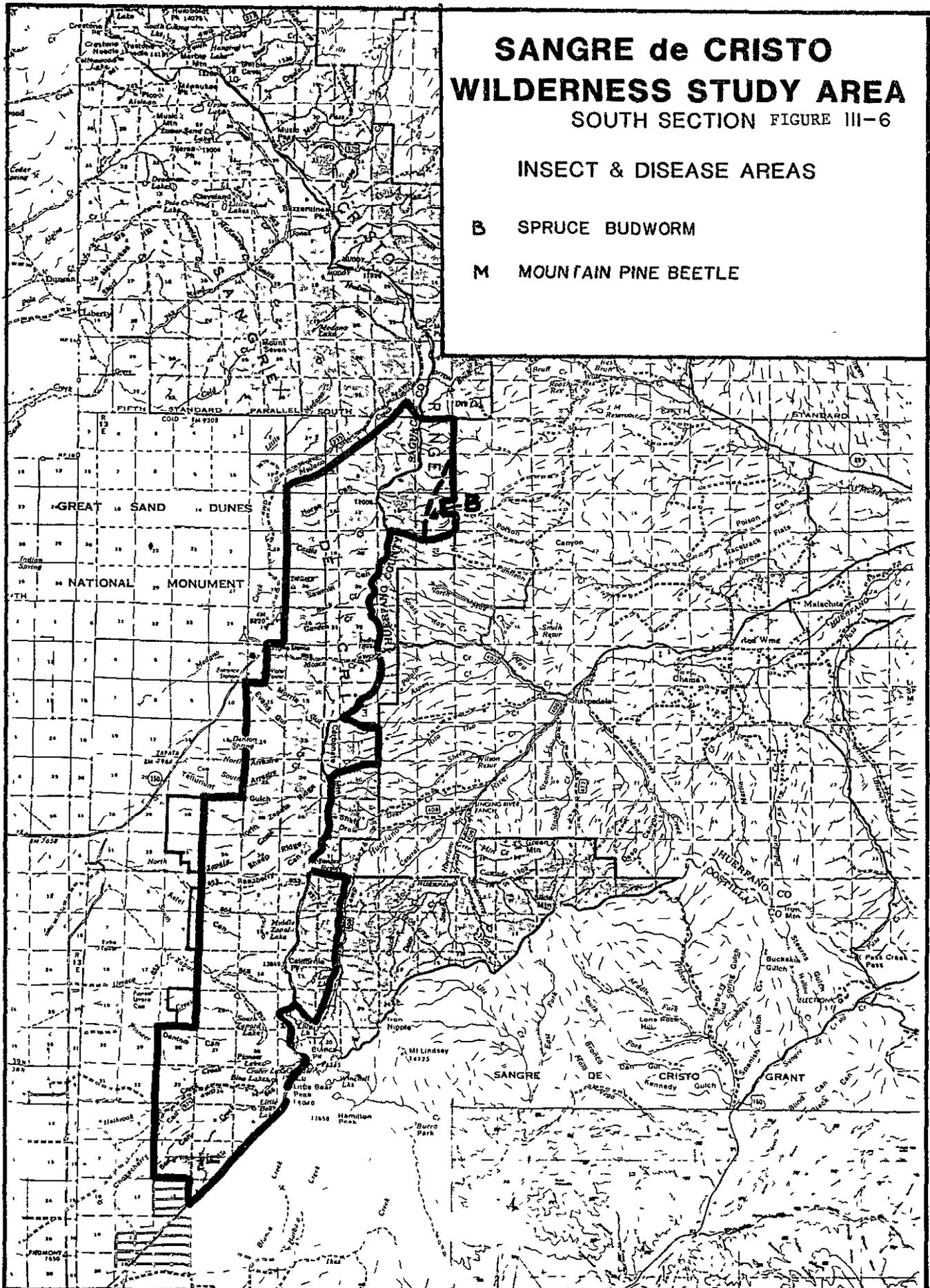


SANGRE de CRISTO WILDERNESS STUDY AREA

SOUTH SECTION FIGURE III-6

INSECT & DISEASE AREAS

- B** SPRUCE BUDWORM
- M** MOUNTAIN PINE BEETLE



HYDROLOGY AND WATER QUALITY

The eastern portion of the Sangre de Cristo WSA includes parts of 13 watersheds, all of which are tributaries of the Arkansas River.

The western portion of the National Forest WSA includes parts of 14 watersheds which are all tributaries of the Rio Grande River.

All of the streams are classified as having A-type stream channels. Channel gradients are very steep and stable for the most part. Stream bed and channel banks are composed of large, coarse material. Streams are fairly deeply entrenched. This limits riparian habitat to the area immediately adjacent to the stream. A few areas occur where the channel gradients are less steep and these areas are usually characterized by beaver activity. Sediment production is very low for the streams in this study area. Most of the fisheries habitat is limited due to steep gradients.

Water quality exceeds the standards established by the State of Colorado. Streams in the area are classified by the State as Class I recreation water, Class I cold water aquatic life, municipal water supplies, and agricultural water.

The Sangre de Cristo Mountains are one of the better water producing areas on the San Isabel National Forest. The water yield varies from .48 acre-feet per acre up to .87 acre-feet per acre. Average water yield for the eastern side is .7 acre-feet per acre. On the western side, water yield varies from 1.6 acre-feet per acre at high elevations to .1 acre-feet per acre at low elevations, with an average yield of .85 acre-feet per acre. The north end of the study area produces the greater amount of water with the yield decreasing toward the south end.

Water improvements in the WSA are irrigation diversion ditches in the Denton Creek, Medano Pass, Hudson Branch, Little Cottonwood Creek, and Montez Reservoir Areas. Spring developments have been planned to supply water for recreational livestock to help reduce the impacts around the alpine lakes. The main value of the water within the area is for its high quality, free flowing nature for fisheries, wildlife, and recreation purposes. Once the water leaves the area, it is of high value for domestic and agricultural use.

The current water yield is estimated to be about 79,400 acre-feet per year. There is a potential to increase this yield by 2,000 acre-feet through vegetation management in spruce/fir and lodgepole vegetation types above 9,000 feet elevation. This potential is primarily located on the eastern slope of the WSA.

WILDLIFE AND FISH

Most of the wildlife and fish species which occur on the Pike and San Isabel and Rio Grande National Forests also exist in the WSA. Wildlife and fish management indicator species which commonly occur are pine marten, bighorn sheep, elk, mule deer, goshawk, northern three-toed woodpecker, and Cutthroat trout.

The predominant general habitat types are spruce-fir and Douglas-fir forest, mountain grassland-alpine tundra, and rocky areas. Also present are aspen, lodgepole, ponderosa, and bristlecone pine, oak, and pinon-juniper. The relative abundance of these habitat types is shown in Table III-D.

TABLE III-D

GENERAL HABITAT TYPES IN THE WILDERNESS STUDY AREA

<u>Habitat Types</u>	<u>Abundance</u>
Spruce/fir	H
Douglas-fir	H
Mt. Grassland-Tundra	H
Rock	H
Aspen	M
Lodgepole Pine	M
Ponderosa pine	M
Oak	L
Pinon/juniper	L
Bristlecone pine	L

Habitat Abundance Key

- H - High
- M - Moderate
- L - Low

Areas surrounding the Wilderness Study Area are typically low elevation habitats such as ponderosa pine, pinon-juniper, oak, and other mountain shrublands.

The WSA rates high in habitat diversity.

The WSA provides winter range for deer, elk, and bighorn sheep, as shown in Table III-E and Figure III-7. Acreages may overlap as two or all three species may use the same range.

TABLE III-E

AREA OF DEER, ELK, AND BIGHORN SHEEP WINTER RANGE

<u>Species</u>	<u>Total Area (thousand acres)</u>	<u>San Isabel</u>	<u>Rio Grande</u>	<u>Bureau of Land Management</u>
Deer	16.8	3.6	8.3	4.9
Elk	11.5	0.8	8.4	2.3
Bighorn Sheep	27.8	1.3	26.5	-0-

Approximately 3 miles of Cottonwood Creek (San Isabel National Forest) have been identified as potential habitat for the greenback cutthroat trout, a Federally listed threatened species.

The WSAs, administered by the Bureau of Land Management include important deer and elk winter range and year-long range for deer and antelope, as indicated in Appendix A of this section.

VISUAL RESOURCE

The Sangre de Cristo Wilderness Study Area is a part of the Sangre de Cristo Range of the Colorado Rocky Mountains, running primarily northwest to southeast in this area. The majority of the landscape is rocky, steep, rugged, and inaccessible. This area frequently serves as a middleground or background view for other landscape types at lower elevations. The highest elevations in this area are snow-capped at least 9 months of the year. The dominant overstory of spruce-fir, aspen, mixed conifer, and understory vegetation provide a high degree of variety, patterns, and seasonal color.

SANGRE de CRISTO WILDERNESS STUDY AREA

NORTH SECTION FIGURE III-7

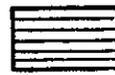
WILDLIFE WINTER RANGE



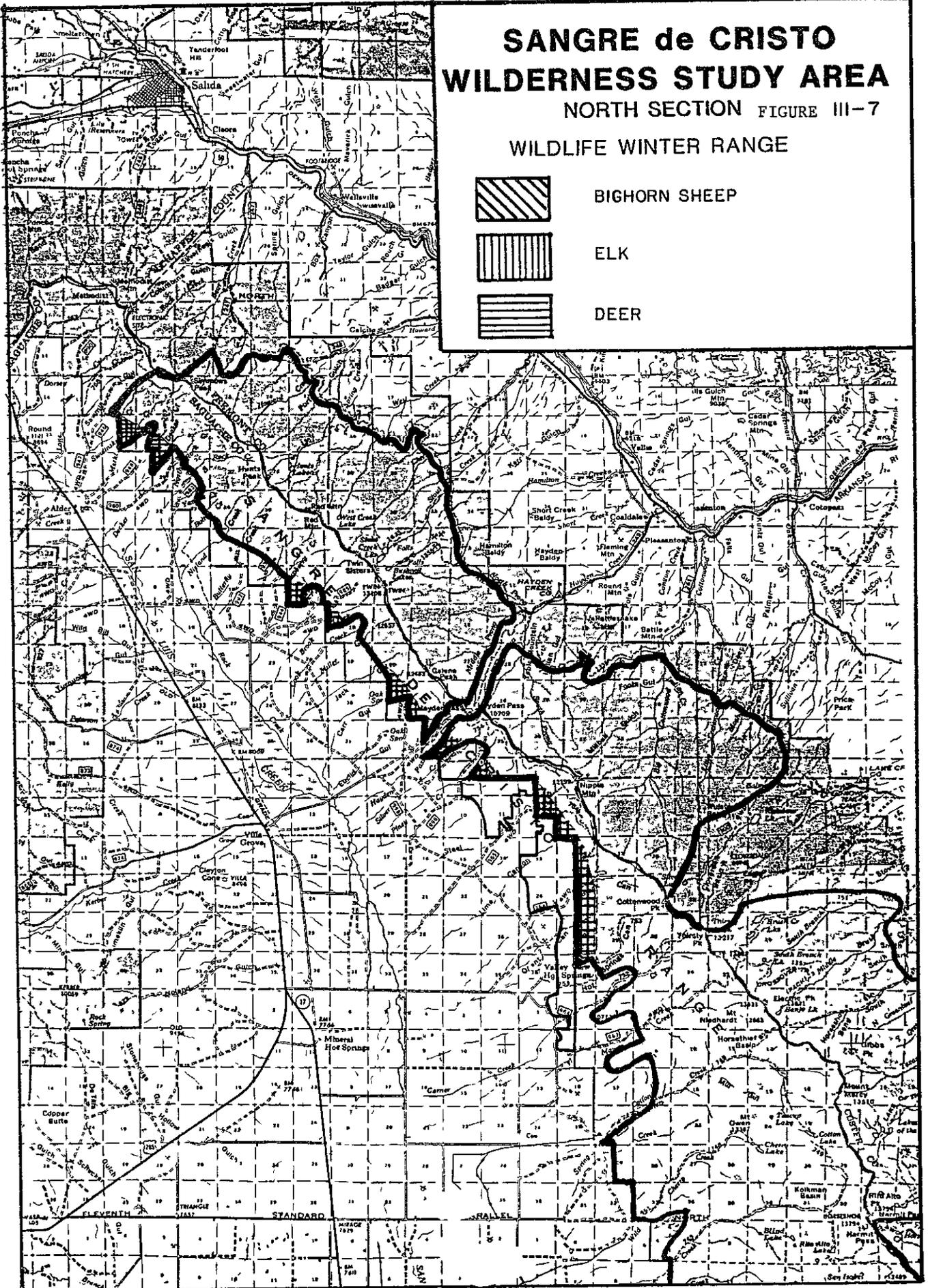
BIGHORN SHEEP



ELK



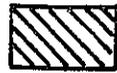
DEER



SANGRE de CRISTO WILDERNESS STUDY AREA

MIDDLE SECTION FIGURE III-7

WILDLIFE WINTER RANGE



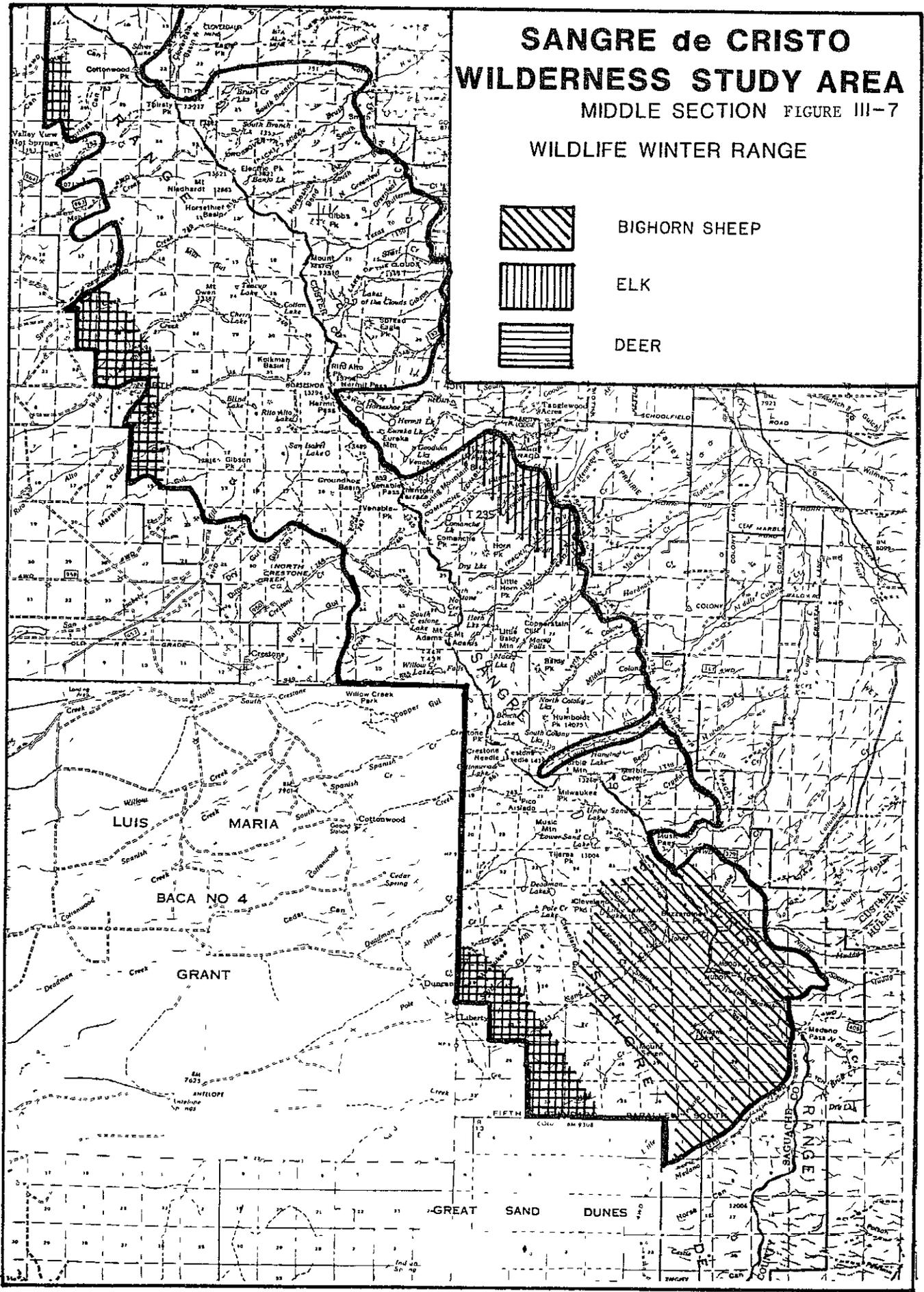
BIGHORN SHEEP



ELK



DEER



The Wilderness Study area is viewed primarily from the San Luis Valley area on the west and the Wet Mountain Valley to the east. The area is criss-crossed with trails with several passing over the Sangres. Visitor use is high along most of the trails and visual sensitivity level is high. The four-wheel drive roads at Medano Pass and Hayden Pass are popular routes with heavy vehicle use.

A number of small lakes and streams with deep, V-shaped drainage patterns provide visual relief and contrast sharply with the vegetation and landform.

The visual variety class for the Sangre de Cristo WSA includes 72,960 acres of Class A (outstanding) and 144,872 acres of Class B (common) as shown on Figure III-8.

RECREATION

The Sangre de Cristo WSA offers a wide spectrum of recreation opportunities. The terrain presents spectacular scenery with rugged peaks, high mountain lakes, and a variety of vegetation and wildlife. Visitors enjoy hiking, backpacking, horseback riding, fishing, general nature study, motorized use on trails, and four-wheel driving on roads. Because of the steep terrain, however, use is more or less confined to the trails and the accessible streams and lakes. Overall visitor use capacities are generally low. On weekends those capacities are quickly reached along the narrow corridors. Winter cross-country skiing and snowshoeing are popular along a few of the trails.

Current recreation use on the San Isabel part of the area was estimated to be 56,200 visitor days in 1981. This was comprised of 43,800 visitor days for various motorized and nonmotorized activities, 4,800 visitor days for hunting, and 7,600 visitor days for fishing.

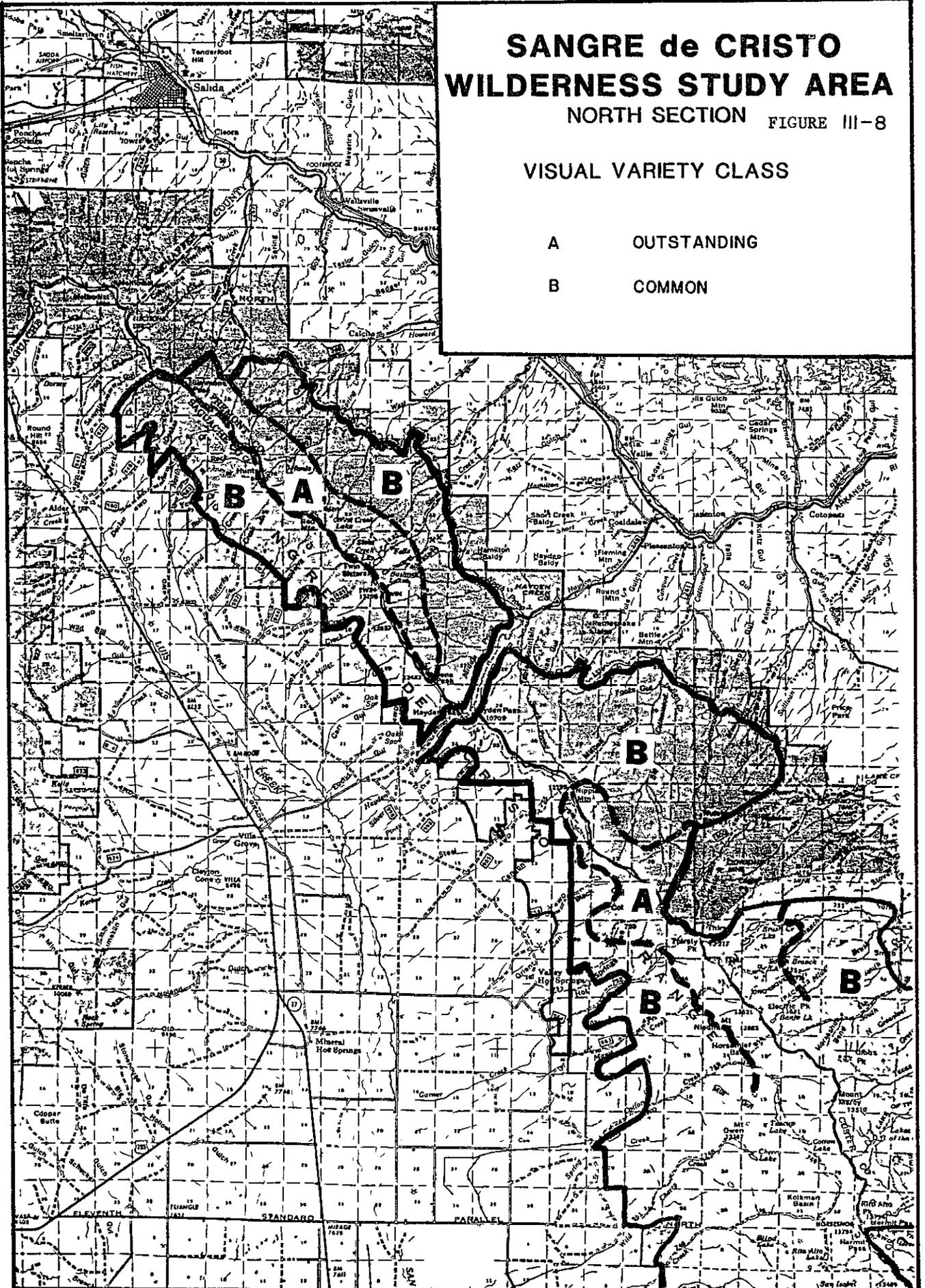
Recreation use on the Rio Grande side was estimated at 64,000 visitor days in 1981. This was comprised of 46,600 visitor days of nonmotorized activities and 17,400 visitor days of hunting and fishing.

SANGRE de CRISTO WILDERNESS STUDY AREA

NORTH SECTION FIGURE III-8

VISUAL VARIETY CLASS

- A OUTSTANDING
- B COMMON



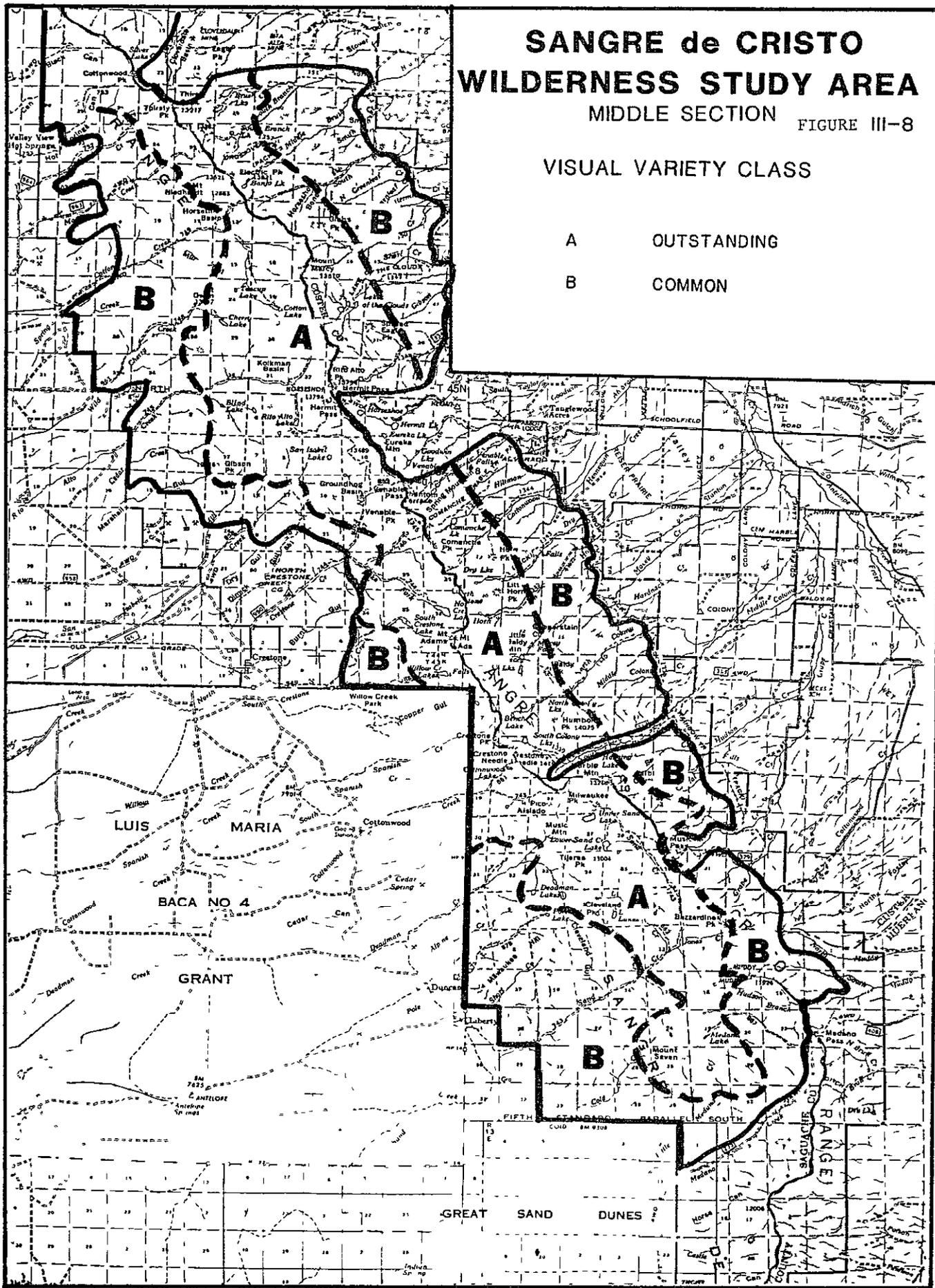
SANGRE de CRISTO WILDERNESS STUDY AREA

MIDDLE SECTION FIGURE III-8

VISUAL VARIETY CLASS

A OUTSTANDING

B COMMON



SANGRE de CRISTO WILDERNESS STUDY AREA

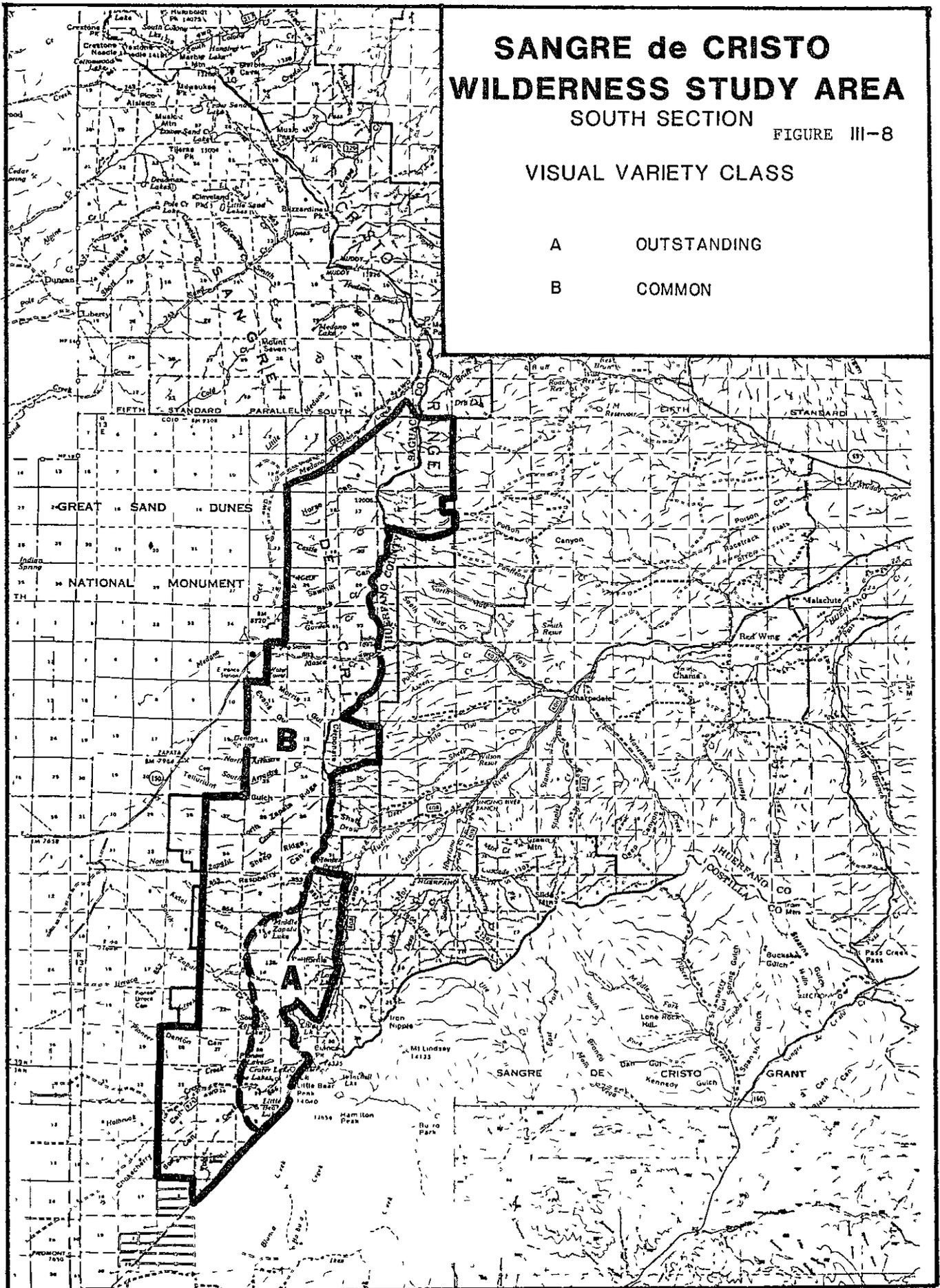
SOUTH SECTION

FIGURE III-8

VISUAL VARIETY CLASS

A OUTSTANDING

B COMMON



The current recreation use on the combined Bureau of Land Management WSAs was estimated to be approximately 500 visitor days per year.

The Recreation Opportunity Spectrum classification shows 28,700 acres (13 percent) in the primitive category, 159,400 acres (73 percent) in the semiprimitive nonmotorized category, 21,400 acres (10 percent) in the semiprimitive motorized category, and 6,100 acres (3 percent) in the roaded natural category. See Figure III-9. The roaded natural areas receive this classification due to the proximity of roads and other developments near the boundary. The classification for Bureau of Land Management lands shows 2,000 acres in the semiprimitive motorized category and 2,900 acres in the roaded natural category.

Potential camp or picnicground sites with an area of 1,158 acres have been inventoried. These could potentially provide up to 250,000 RVD's per year of developed site use with maximum development. Development of those sites is not proposed or contemplated in the foreseeable future in any situation, however.

CULTURAL RESOURCES

Although an intensive survey of the area has not been conducted, a number of historic features have been recognized. They include the Como Lake area and townsite, Mosca Pass and trail, Medano Pass, Music Pass, Venable Pass, Hermit Pass, and Marble caves (Spanish Cave), all of which played a role in the early history of the area. The sites have not been evaluated to determine their significance. No prehistoric sites have been identified, although the WSA was undoubtedly used for hunting and travel.

NON-FEDERAL OWNED LANDS

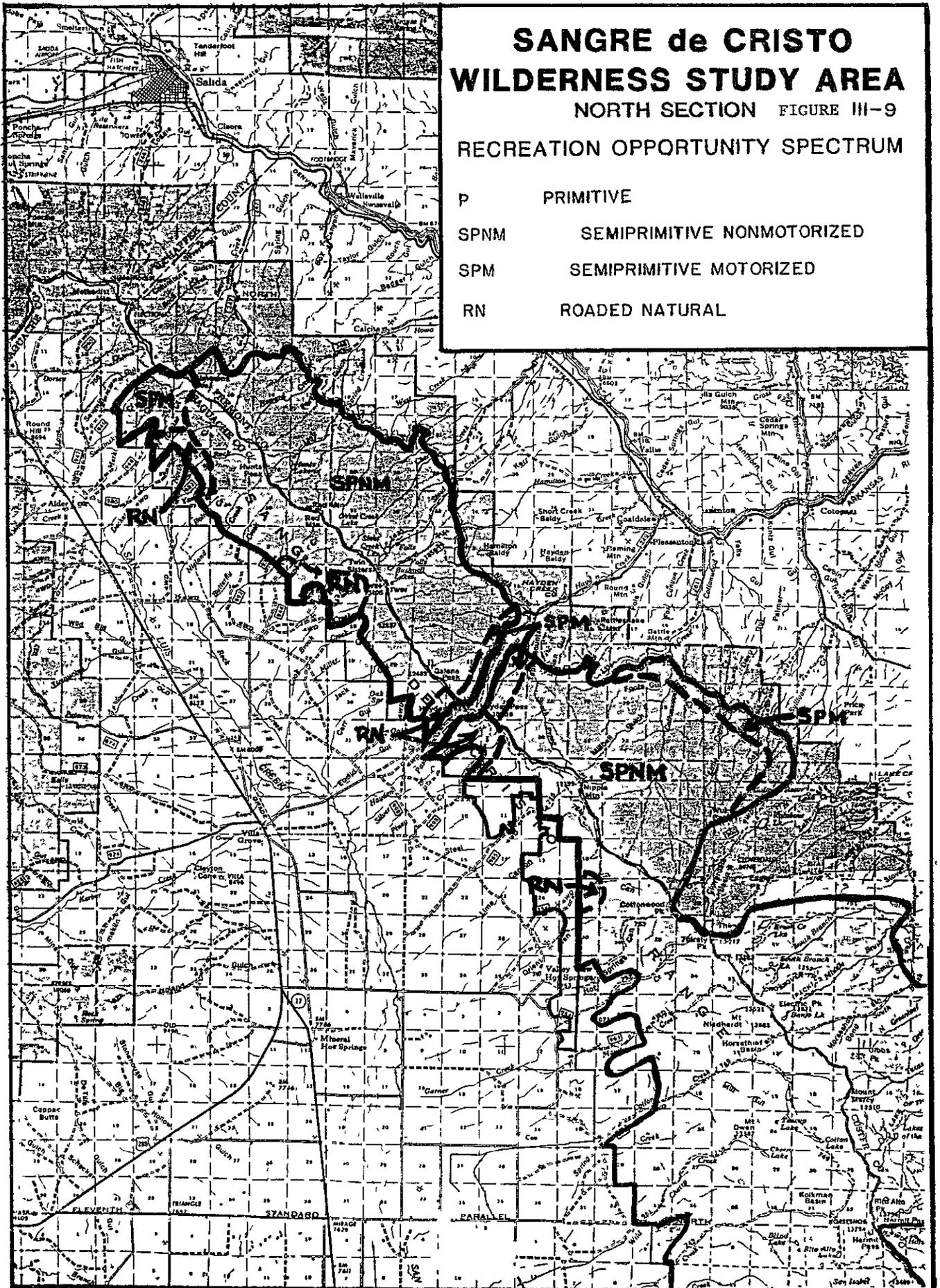
The San Isabel National Forest portion of the WSA includes about 140 acres of private lands. See Figure III-10. These include two tracts which are located both inside and outside the boundary and a patented mining claim in the southeastern part of the WSA.

SANGRE de CRISTO WILDERNESS STUDY AREA

NORTH SECTION FIGURE III-9

RECREATION OPPORTUNITY SPECTRUM

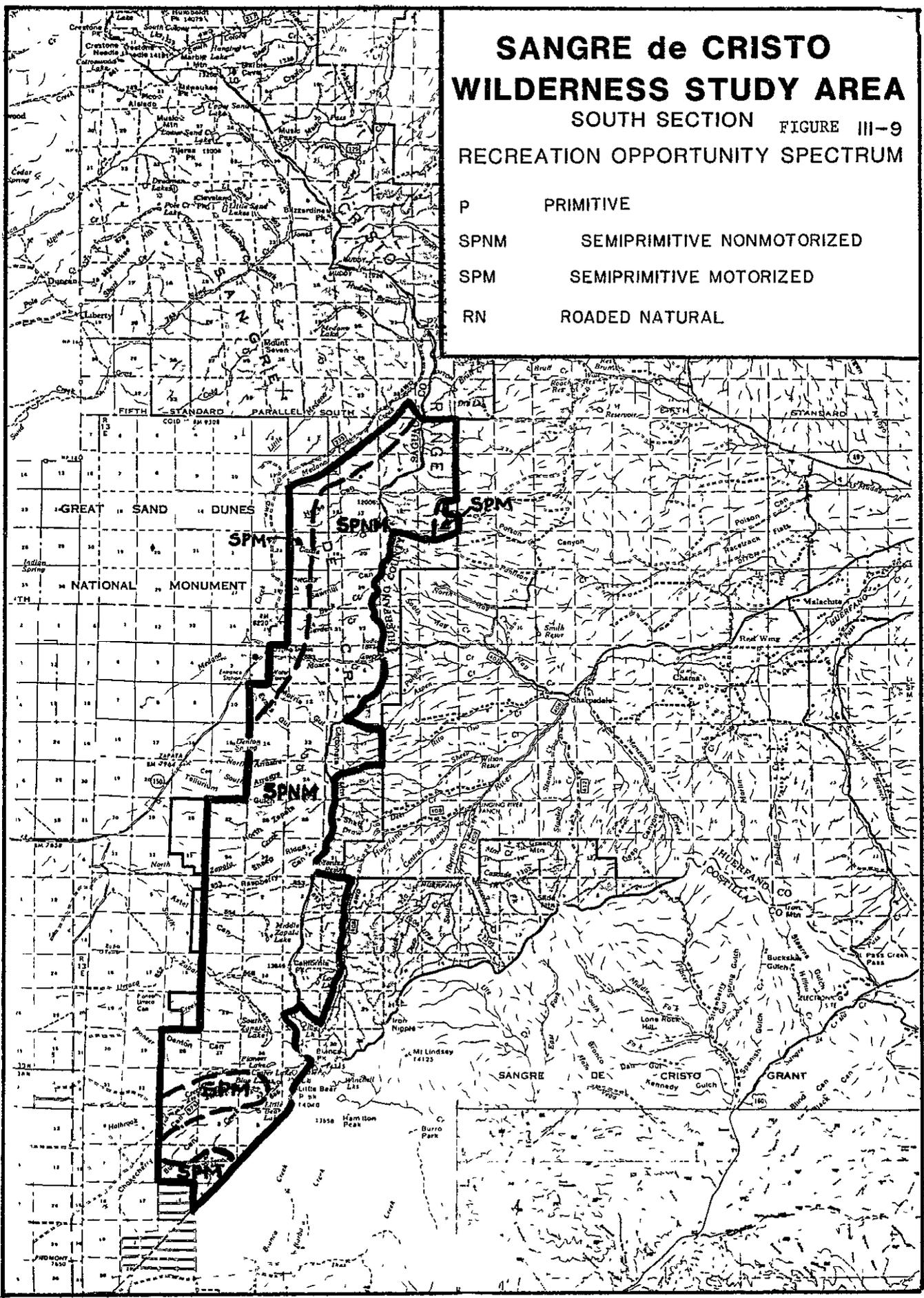
- P PRIMITIVE
- SPNM SEMIPRIMITIVE NONMOTORIZED
- SPM SEMIPRIMITIVE MOTORIZED
- RN ROADED NATURAL



SANGRE de CRISTO WILDERNESS STUDY AREA

SOUTH SECTION FIGURE III-9
RECREATION OPPORTUNITY SPECTRUM

- P PRIMITIVE
- SPNM SEMIPRIMITIVE NONMOTORIZED
- SPM SEMIPRIMITIVE MOTORIZED
- RN ROADED NATURAL



The Rio Grande National Forest portion of the WSA includes 660 acres of private lands within the boundary. See Figure III-10. These private lands include 130 acres on the west side of Blanca Peak including the old abandoned townsite of Como. Other lands include a 160 acre tract located in Sand Creek. Future development of these lands may be expected. The remainder of the patented lands generally occur as scattered mining claims. The Forest Service is required by statute to provide access to privately owned lands.

The Bureau of Land Management Black Canyon WSA is essentially bisected by three patented mining claims.

TRANSPORTATION

The Sangre de Cristo WSA is generally accessible from Highway 50 on the northeast side, from Highway 69 between the Arkansas River and Walsenburg on the eastern side, and from Highway 17 between Salida and Alamosa on the western side. Major access points on the eastern slope are at the Hayden Creek Road, Lake Creek Campground, Hermit Lake Road, Alvarado Campground, Medano Pass Road, and Mosca Pass Road.

Major access points on the western side include the Hayden Pass Road, Crestone Creek, and the Medano Creek Road from the Great Sand Dunes National Monument. Several other lower standard roads also provide access to the Forest boundary or the WSA boundary, but many of these have no public right-of-way and access is controlled by the private landowners. There are also several low standard four-wheel drive roads which penetrate short distances inside the WSA but these are closed to public use. Two four-wheel drive roads (Medano Pass and Hayden Pass) divide the northern and southern portions of the study area from the central portion. The Blue Lakes or Como Lake four-wheel drive road on the southwestern corner of the area penetrates to within about one mile of the divide.

The Rainbow Trail parallels the eastern boundary of the study area and Forest boundary from Music Pass to the northern end of the WSA. Motorized trail vehicle use is allowed on the trail.

Numerous trails provide access from the Rainbow Trail toward the summit of the Sangre de Cristo Range and the high lakes. Due to the ruggedness of the mountain range, many trails terminate before reaching the divide and do not cross the divide except in a few places. Motorized use is allowed on the Comanche-Venable and Lake-of-the-Clouds Trails.

SANGRE de CRISTO WILDERNESS STUDY AREA

NORTH SECTION FIGURE III-10

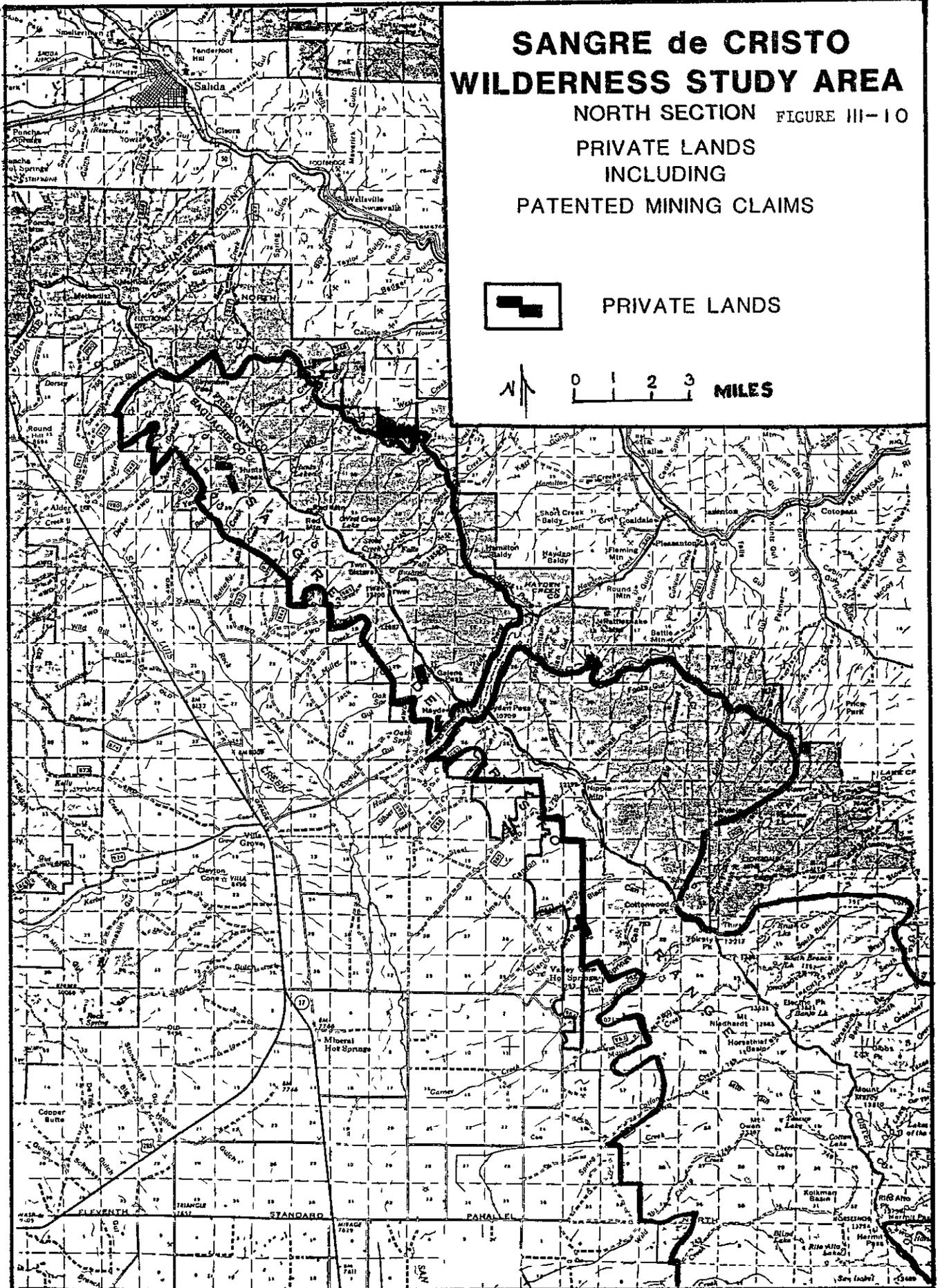
PRIVATE LANDS
INCLUDING
PATENTED MINING CLAIMS



PRIVATE LANDS



0 1 2 3 MILES



SANGRE de CRISTO WILDERNESS STUDY AREA

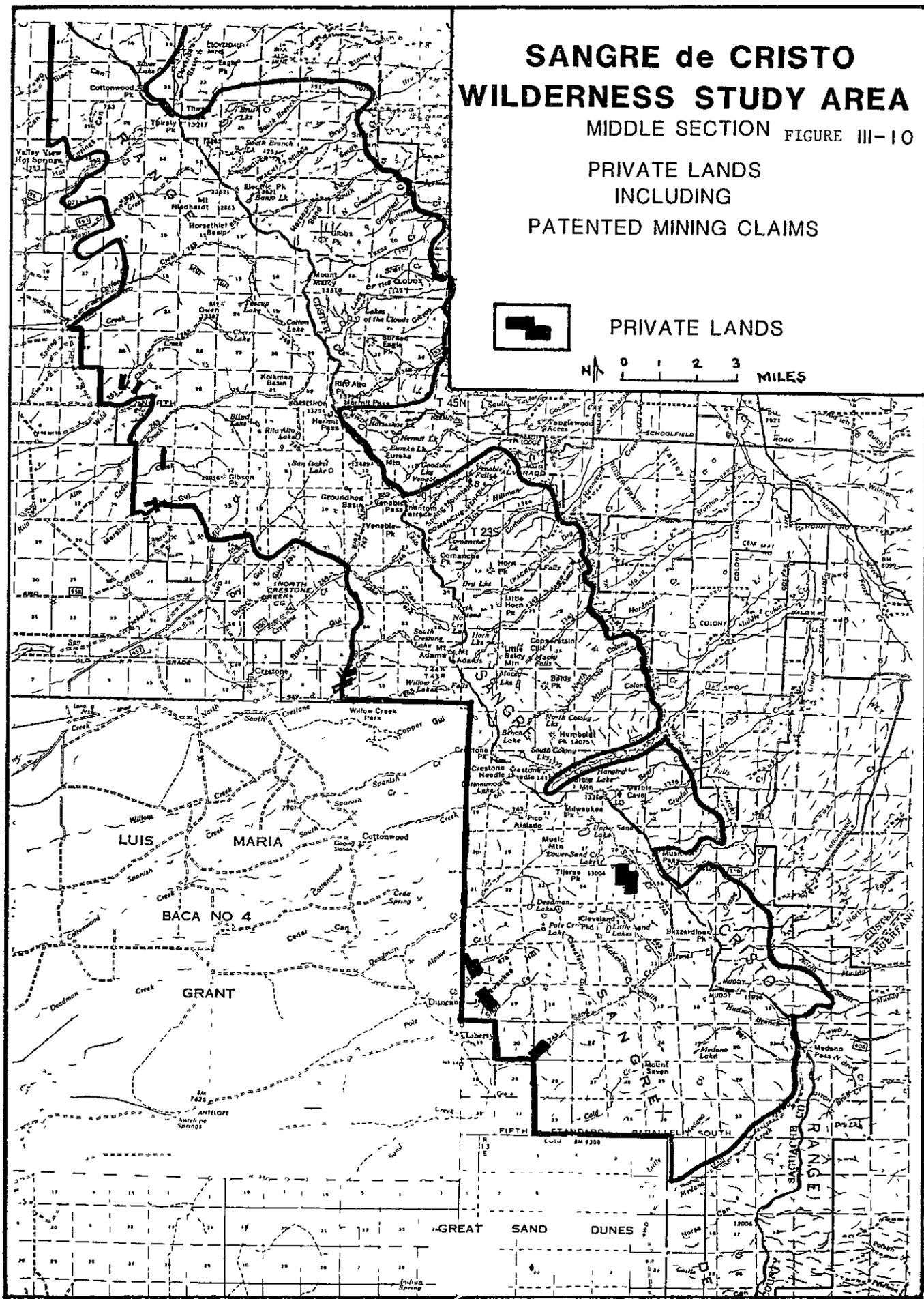
MIDDLE SECTION FIGURE III-10

PRIVATE LANDS
INCLUDING
PATENTED MINING CLAIMS



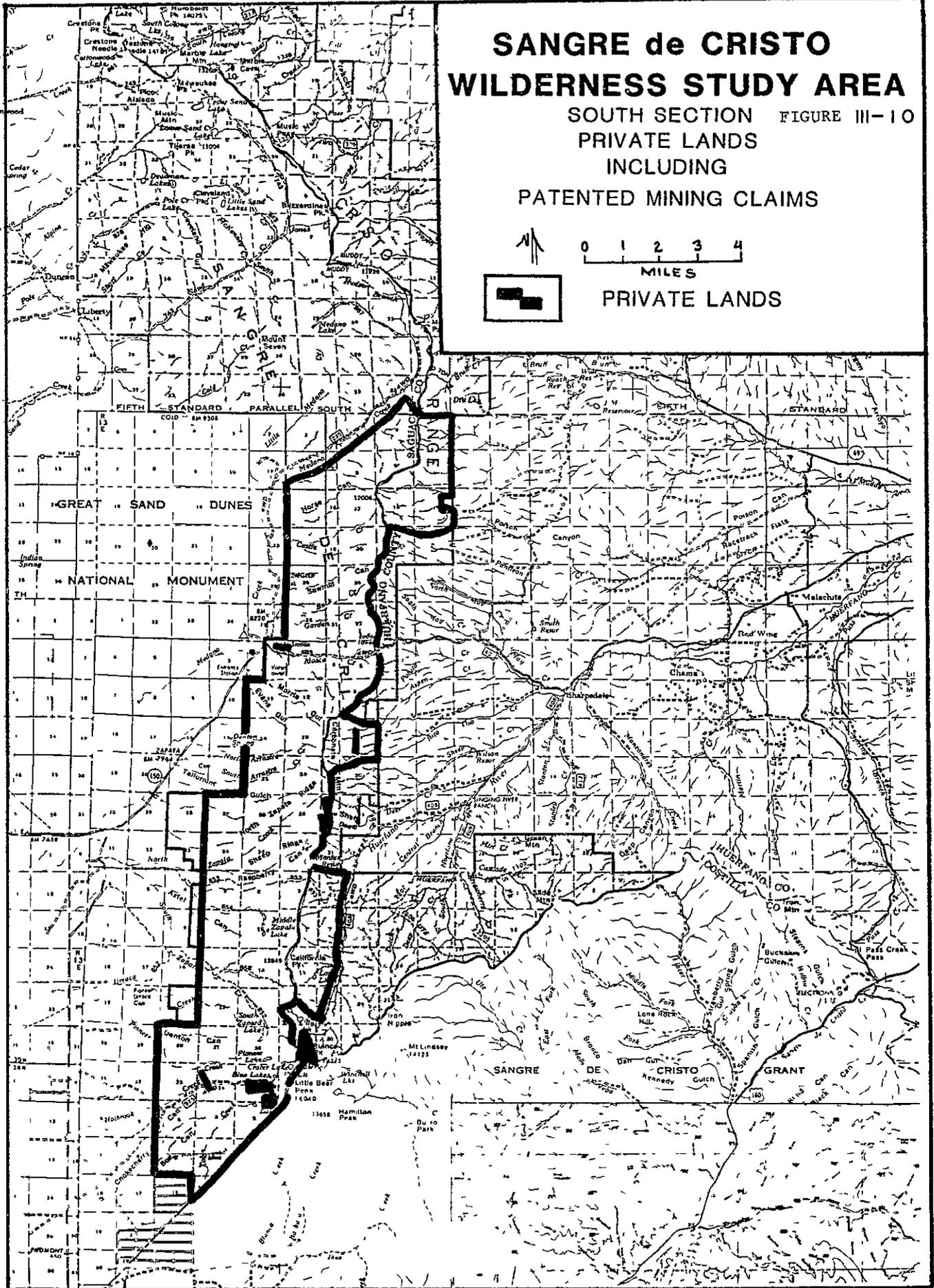
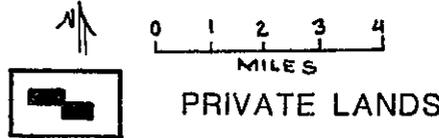
PRIVATE LANDS

0 1 2 3 MILES



SANGRE de CRISTO WILDERNESS STUDY AREA

SOUTH SECTION FIGURE III-10
PRIVATE LANDS
INCLUDING
PATENTED MINING CLAIMS



Several rights-of-way are needed to provide access to National Forest System lands in the WSA on both the west and east sides. Also, rights-of-way are needed at several points where the Rainbow Trail crosses private land without a public right-of-way. In other places, the trail needs to be relocated to avoid private land. If motorized use of the trail is to be continued, a modification of the Wilderness Study Area boundary will be necessary to allow room for relocation of the trail. At least one landowner has indicated an unwillingness to grant a right-of-way across private land and has requested that the trail be relocated.

RANGE

The Sangre de Cristo WSA contains portions of three existing livestock allotments (see Figure III-11) on the San Isabel Forest with a permitted use of approximately 109 animal unit months per year. There is an additional 4,425 acres of potential suitable range with an estimated capacity of 3,500 animal unit months per year.

The area on the Rio Grande National Forest contains all or parts of six livestock allotments. Four are stocked with a permitted use of 928 animal unit months per year on 2,680 acres of suitable range. The remaining two are presently vacant, but have a capacity of 1,850 animal unit months per year on 4,160 acres of suitable range.

The Bureau of Land Management WSAs have a capacity of 58 animal unit months per year.

LAND USES

Land uses in the WSA include diversion ditches at Music Pass, Denton Creek, Medano Pass, Montez Reservoir, and Little Cottonwood Creek. An AT&T microwave site is located on the boundary of the area at Mosca Pass.

SOCIAL SETTING

The Sangre de Cristo Wilderness Study Area falls within several Human Resource Units (HRU's). The HRU's are areas delineated to identify social and economic patterns and lifestyles. The HRU's generally coincide with County boundaries. Management actions in the Forest Plan are designated to respond to identified issues, conditions, and needs. Those Counties and HRU's which include the Sangre de Cristo WSA are Fremont and Custer Counties in Sangre de Cristo - Wet Mountains HRU and Huerfano County in the Spanish Peaks HRU on the east. On the west side are Alamosa, Costilla, and Saguache Counties in the San Luis Valley. The WSA adjoins but is not within Costilla County. Economic and social conditions are further discussed in the Bureau of Land Management Management Situation Analysis (Appendix A).

SANGRE de CRISTO WILDERNESS STUDY AREA

NORTH SECTION

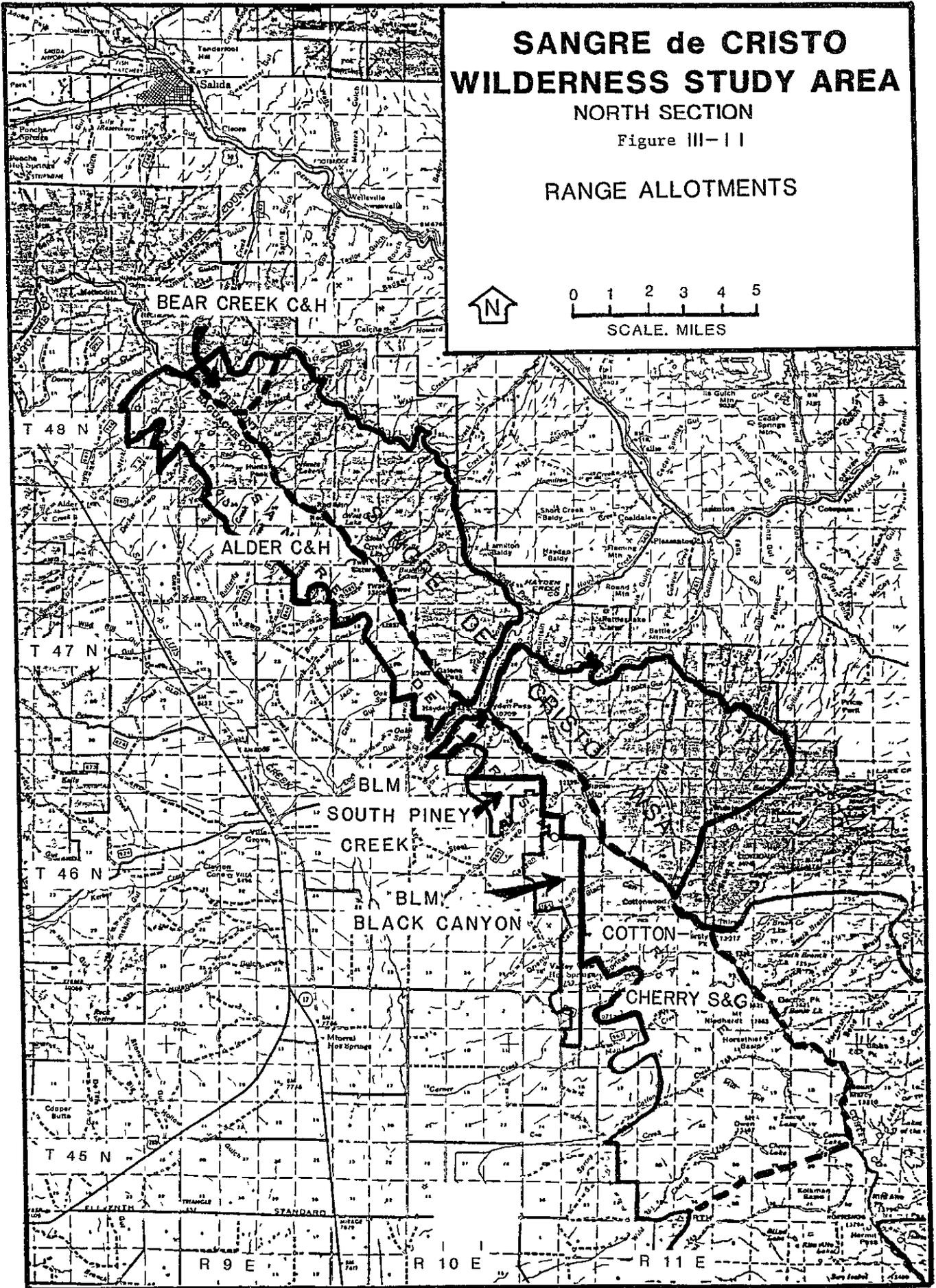
Figure III-11

RANGE ALLOTMENTS



0 1 2 3 4 5

SCALE. MILES



SANGRE de CRISTO WILDERNESS STUDY AREA

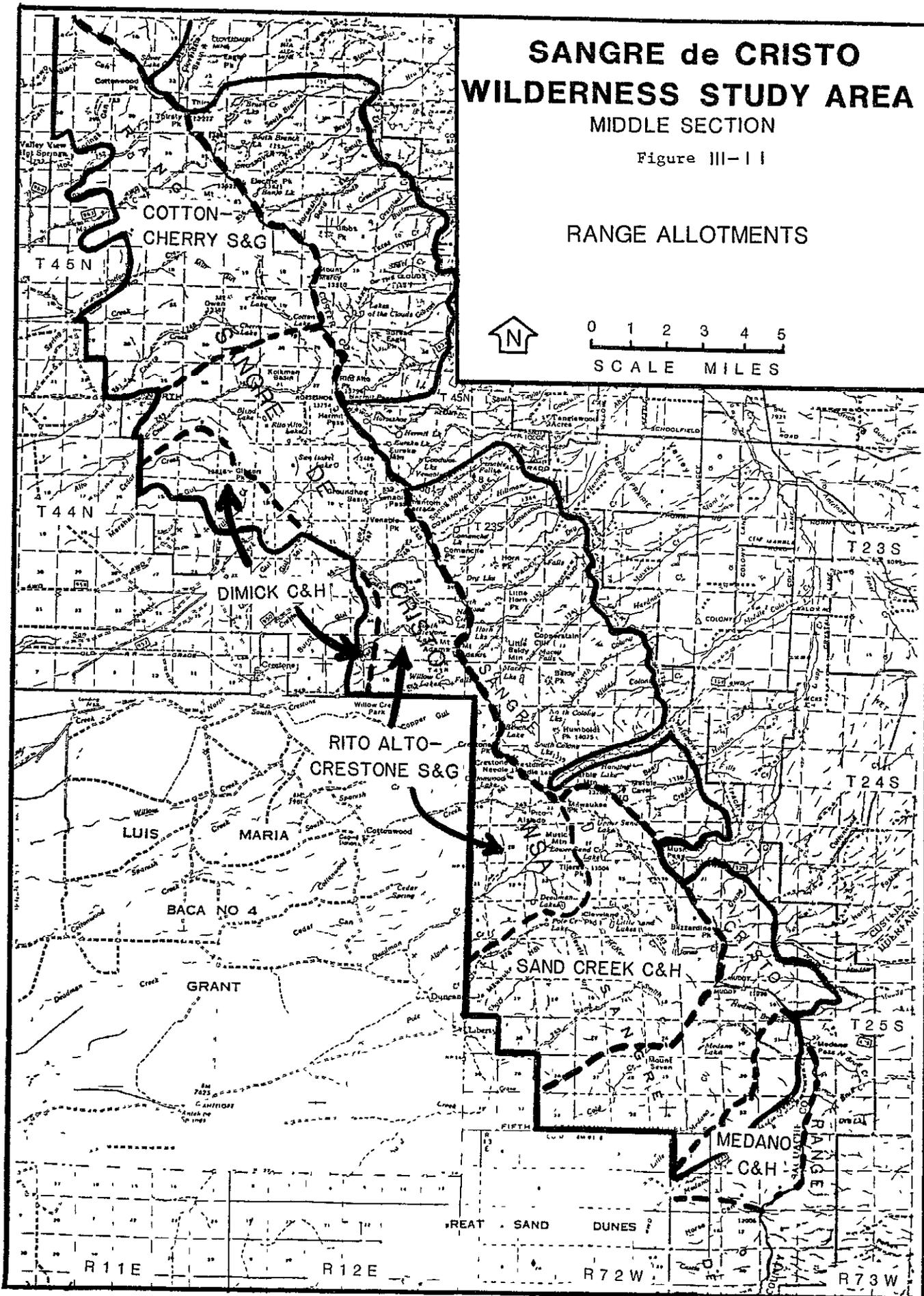
MIDDLE SECTION

Figure III-11

RANGE ALLOTMENTS



0 1 2 3 4 5
SCALE MILES



SANGRE de CRISTO WILDERNESS STUDY AREA

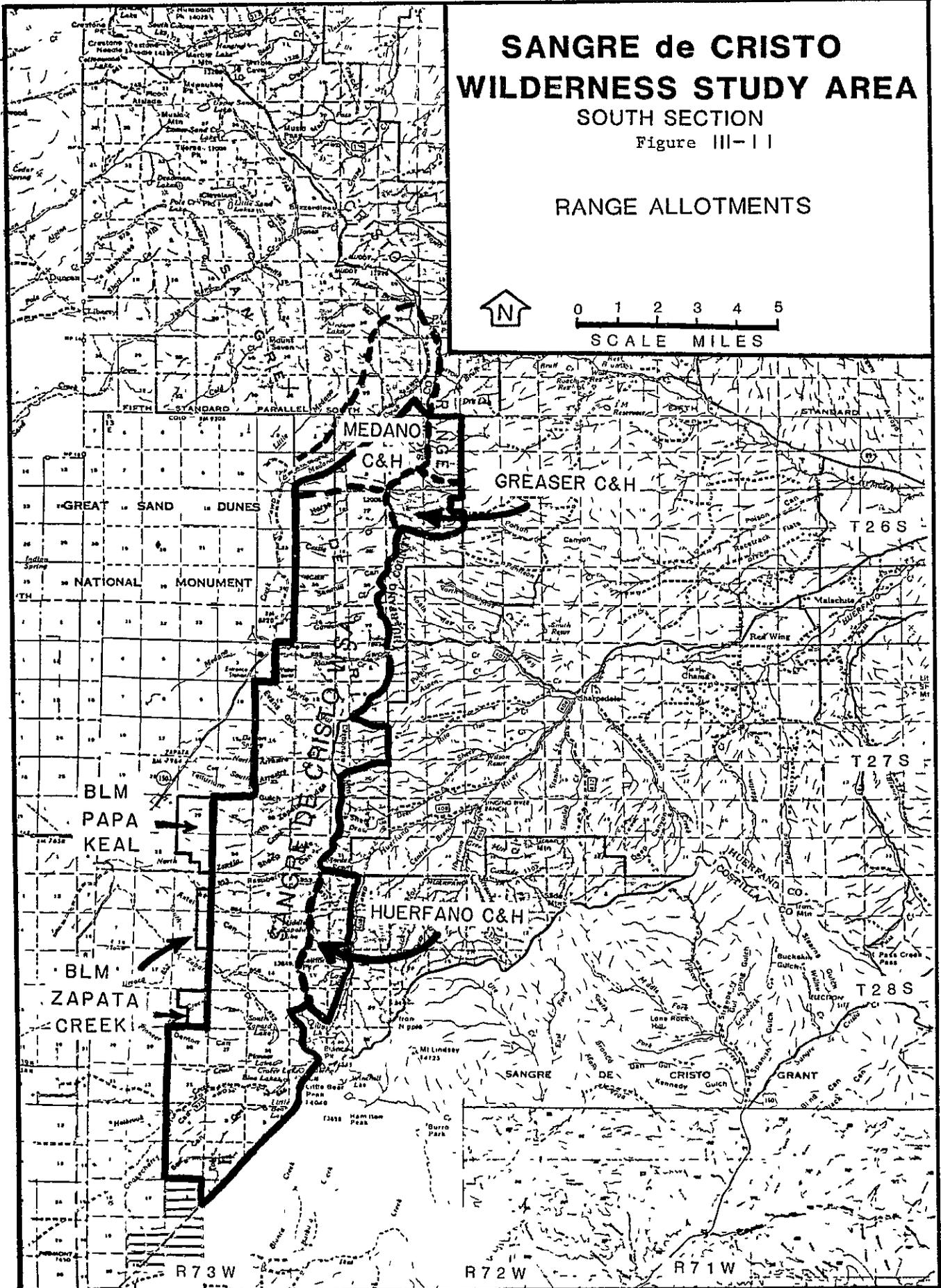
SOUTH SECTION

Figure III-11

RANGE ALLOTMENTS



0 1 2 3 4 5
SCALE MILES



POPULATION

The County populations in the HRU's are generally low with economies and employment based on agriculture and ranching. A number of small communities provide goods and services for local needs and needs of through travelers or seasonal recreation visitors. The largest community in the immediate locale is Alamosa with about 6800 residents. The Counties include a significant minority population of Spanish American origin. Overall populations are relatively stable with gradual increases expected in the future. See Table III-F.

TABLE III-F
POPULATION INFORMATION

HRU Counties	POPULATION 1980	POPULATION TREND 1970-1980	POPULATION Spanish-American Origin
Sangre de Cristo- Wet Mountains			
Custer County	1528	+36.4%	37 (2%)
Fremont County	28676	+30.7%	2287 (8%)
Spanish Peaks			
Huerfano County	6440	- 2.3%	2836 (44%)
San Luis Valley			
Alamosa County	11799	+3.3%	3772 (32%)
Saguache County	3935	+2.8%	1622 (41%)

LIFESTYLES

Lifestyles in the Counties are rurally oriented. The people are generally conservative in their spending and recreation. Entertainment and social activities are centered on church and community activities. Opportunities such as hunting, fishing, gathering forest products and general sightseeing on the National Forest are important to them. Lifestyles are oriented to outdoor work routines of farming and ranching. In recent years there has been an increase in the number of summer recreation residents, particularly in Saguache and Custer Counties.

ATTITUDES, BELIEFS, AND VALUES

The close ties to the land are reflected in the attitudes, beliefs, and values in the Counties. Like the lifestyles, the attitudes and beliefs are also conservative, which results in a relative stable way of life.

Trends are slow in developing. The longtime residents have developed a sense of proprietorship over the nearby public lands and WSA's on which they depend for local sources of fuelwood and other timber products, hunting, fishing, and recreation opportunities as well as grazing privileges and water rights.

SOCIAL ORGANIZATION

The organization is closely tied to relatively small groups of people with similar backgrounds and customs. The people are generally well informed and are actively involved in local issues and concerns. Family ties are important, especially among the Spanish American population.

POPULATION AND LAND USE

The Forests, including the WSA, have long played an important role in the lives of the people surrounding them. For many, they have directly furnished forest products in the form of wood for fuel and building as well as forage for their livestock. Water directly from the Forests has been important for domestic and irrigation use. More recently it is increasingly important for recreation. Mineral exploration and development has also become significant.

The Counties are becoming increasingly dependent on industrial or non-agricultural sources to provide or supplement family incomes. Subdivision of lands for recreation residence sites has displaced some ranching.

ECONOMIC SETTING

The Sangre de Cristo Wilderness Study Area falls within Custer, Fremont, Huerfano, Alamosa, and Sagauche Counties. The economic base has largely been associated with agriculture and ranching. This has been gradually changing toward non-agricultural sources. For example, subdivision of lands for recreation residence sites has displaced some ranching.

EMPLOYMENT AND INCOME

Much of the employment is seasonal with high average unemployment rates and low average incomes. Per capita personal income has been increasing in the past few years primarily due to inflationary factors.

TABLE III-G
Income and Average Unemployment

<u>County</u>	<u>Per Capita Income (1980)*</u>	<u>Ave. Unemployment 1980 (%) **</u>
Alamosa	5694	8.0
Custer	5331	4.5
Fremont	5901	5.4
Huerfano	5159	9.6
Saguache	4504	5.1

* in 1979 dollars

** % unemployed 15 or more weeks persons 16 or more years of age in labor force in 1979.

Source: Summary of Characteristics for Governmental Units and Standard Metropolitan Statistical Areas, Colorado, 1980, PHC 80-3-7 Colo., U. S. Department of Commerce, Bureau of Census.

RETURNS TO COUNTIES FROM RECEIPTS

In Fiscal Year 1981, the Pike and San Isabel National Forests and Rio Grande National Forest generated receipts for use of the National Forest facilities and resources. By law, 25 percent of the revenues collected by the U.S.D.A. Forest Service must be returned to the states to be used for schools and roads in the counties where the National Forest System lands are located. The counties which include the Sangre de Cristo W.S.A. received \$119,842.86 as their share of Forest Service receipts.

Distribution of share by County:

Alamosa County	\$ 2,984.26
Custer County	10,518.37
Fremont County	6,418.83
Huerfano County	8,990.35
Saguache County	<u>90,931.05</u>
Total	<u>\$119,842.86</u>

CHAPTER IV

ENVIRONMENTAL CONSEQUENCES

This chapter outlines environmental effects that would result from implementing the alternatives under consideration. It is based on the analysis of the affected environment discussed in Chapter III as well as additional information contained in the Environmental Impact Statement for the Forest Plan. The first section describes environmental consequences as they relate to individual resources, and the second section deals with overall wilderness suitability.

RESOURCE ENVIRONMENTAL CONSEQUENCES

WILDERNESS

Alternative 1 (Suitable for Wilderness Designation) recommends adding 222,882 acres to the National Wilderness Preservation System.

Alternative 2 (Suitable With Boundary Modifications), would result in a recommendation adding 190,469 acres to the National Wilderness Preservation System. The remainder of the WSA (32,273 acres) would be unsuitable.

Alternative 3, (Unsuitable - No Action) and Alternative 4 (Unsuitable - Management for Resource Development) would initially preclude adding the National Forest WSA or the Bureau of Land Management WSAs to the National Wilderness Preservation System.

The wilderness attributes of the WSA will be maintained until Congress makes the final decision on the recommendation.

Effects on the wilderness characteristics of the study area are largely dependent on the activities which might take place under the management or utilization and development of other resources. Wilderness designation would not have an effect on the area.

Alternative 1 would provide the potential to maintain the area's natural integrity and apparent naturalness. Outstanding opportunity for solitude would be more difficult to maintain. Intensive management activities and instigation of a recreation user permit system would probably be necessary in the most popular areas. Some loss in this quality might occur from increased attraction and publicity associated with wilderness designation. Outstanding opportunity for a primitive and unconfined type of recreation would not be significantly changed except in the few locales where motorized trails and 4-wheel drive roads currently exist. This effect is further discussed under the recreation resource.

Alternative 2 provides a high degree of potential to maintain natural integrity and apparent naturalness. Some loss would occur in those characteristics on the unsuitable portions. Outstanding opportunity for solitude would be about the same as Alternative 1. Most of the locations where heavy recreation use occurs are excluded from the modified boundary, hence the management effort to maintain the outstanding opportunity for solitude on the wilderness portion is considerably eased. Opportunity for primitive recreation is slightly less as some of the motorized trails and 4-wheel drive roads would be left open under management as indicated in the Forest Plan on the unsuitable portions.

Alternative 3 would result in some degree of loss of natural integrity and apparent naturalness in those locales where management activities impact the site. Outstanding opportunities for solitude are likely to continue over most of the study area. Primitive recreation opportunity would remain about the same as it currently exists but would be somewhat less than that provided under Alternatives 1 or 2.

Alternative 4 is similar to Alternative 3 in effects.

GEOLOGY AND SOILS

The landforms and soils will not be affected directly by any alternative. Vegetation management activities and increased potential for mineral activity under Alternatives 2, 3 or 4 could impact the soils within project areas. Mitigation measures as established in Chapter III of the Forest Plan maintain the impacts within acceptable limits.

In either Alternatives 2, 3, or 4 the more productive sites with better soil conditions would be available for wood fiber production.

MINERALS

Under any alternative, until Congress determines otherwise, mineral exploration and development activities under general mining laws shall be administered according to the laws generally applicable to the National Forest System (Public Law 96-560, Section 105(c)) or laws applicable to lands administered by the Bureau of Land Management.

Only leasing with no surface occupancy stipulations is recommended until Congress acts on the disposition of this area, designates it as wilderness or releases it to multiple-use management. The issuance of mineral leases will be affected by a wilderness designation since the area will not be available for mineral leasing.

Since midnight December 31, 1983, except for the exercise of valid existing rights, the Wilderness Act of 1964 has withdrawn wilderness areas from appropriation or disposition under the mineral laws and leasing. Under Alternatives 1 or 2 the effect would be to reduce the

potential for impact of the area from mineral exploration and development on the suitable area. The unsuitable area under Alternatives 2, 3, or 4 would continue to be available to exploration and development as provided in the mining laws with appropriate mitigation under Chapter 3 of the Forest Plan for National Forest System lands or the applicable land management plans of BLM lands.

Table IV-A illustrates the area subject to mineral leasing availability recommendations under the alternatives in this study.

TABLE IV-A
MINERAL LEASING AREA
(1,000 acres)

Category	Alternative								
	1			2			3 & 4		
	Suitable			Suitable W/Modified Bdry.			Unsuitable		
	PSI	RG	BLM	PSI	RG	BLM	PSI	RG	BLM
Geophysical Investigation	-0-	-0-	-0-	24.4	5.2	4.9	86.0	130.7	4.9
Leasable *	-0-	-0-	-0-	24.4	5.2	1.6	86.0	130.7	4.9
No leasing (Will be withdrawn)	86.0	130.7	4.9	61.6	125.5	3.3	-0-	-0-	-0-

*Since December 31, 1983, wilderness area have been withdrawn from appropriation and disposition under the mining laws, except for valid existing claims prior to that date. Lands not designated as wilderness will be managed the same as non-classified NFS lands.

VEGETATION

The vegetation within the WSA will continue to be influenced mainly by natural ecological forces under Alternative 1. Use of forage by livestock will continue. Potential mineral activity may create site specific changes. Restoration can return disturbed areas to production but only over a long period of time because of the slow recovery of fragile ecosystems. Aspen and other temporary species would tend to be replaced by climax species under Alternative 1.

Under Alternative 2, the vegetation could be managed with mitigation as provided in the Forest Plan on up to about 12 percent of the National Forest lands to produce wood fiber, increase water yield, and improve and maintain wildlife habitat.

Under Alternatives 3 and 4, the vegetation could be managed with mitigation as provided in the Forest Plan on up to about 25 percent of the National Forest lands to provide wood fiber, increase water yield, and improve and maintain wildlife habitat.

TIMBER

Implementation of Alternative 1 would result in the timber resource being unavailable for management. Tree stands in the wilderness would tend to overmature with increased prevalence of insects and disease.

Under Alternative 2, it is likely that some of the more accessible and suitable forest of the nonwilderness part of the WSA would be harvested for local needs and wildlife habitat improvement purposes. This could amount to a long term sustained yield harvest of up to 1.9 MMBF per year, based on slopes of 45 percent or less. It is unlikely that timber harvest would occur on the remainder of the unsuitable area under present technology because of steep slopes, and/or low volumes.

Under Alternatives 3 and 4, it is also likely that at least the more accessible and suitable National Forest portion of the WSA would be harvested. This could amount to a sustained yield of up to 3.8 MMBF per year, based on slopes of 45 percent or less. It is unlikely that timber harvest would occur in the remainder of the area under present technology because of steep slopes.

These yields would occur on the San Isabel National Forest only because the suitable forest lands on the Rio Grande National Forest generally exceed 45 percent in slope.

PROTECTION

Air Quality.

There is no evidence to indicate that any alternative would have an effect on the air quality in the area. Increased dust or smoke from the area because of management activities or utilization of resources as provided in the Forest Plan under Alternatives 2 or 3, would be minor in extent and of a temporary nature. Activities or industries outside of the area which may utilize or process resources from the study area are regulated by Local, State, and Federal laws applicable to maintaining air quality.

Fire.

Although the incidence of fire is low in the study area under Alternative 1 and 2, fire could potentially play a more natural role in the ecology of the area. A fire management policy incorporating the use of naturally occurring fires burning within prescription could be implemented to promote a wilderness environment truly shaped by naturally-occurring phenomena. Without such a policy, wildfire

occurrence and intensity would increase in the long-run due to natural accumulation of ground fuels. As the possibility of major conflagrations increase, adjacent lands would be increasingly threatened as well. Under this alternative, transportation of personnel to fires as well as suppression efforts would be generally restricted to non-mechanical means. This increases response time and enhances the likelihood of larger fires.

Under Alternatives 2, 3, and 4, fire management as provided in the Forest Plan would include opportunities to reduce ground fuels through timber harvesting, prescribed burning and by mechanical means. Increased use of the area could increase the occurrence of man-caused fires.

Forest Pest Management.

Under Alternative 1, opportunities for utilizing an integrated approach to pest management through vegetation management activities would be limited. Prevention and control of insect and disease outbreaks using integrated pest management would be limited to those situations in which values on adjacent lands are threatened. Until such time, forest residues would accumulate and decay through natural processes and could provide favorable conditions for insect and disease infestation buildup.

Under Alternatives 2, 3, and 4, opportunities would be available to coordinate pest management with other resource management activities. Removal of dead and overmature wood through timber sales for prevention and control of insect outbreaks are examples of such activities.

WATER

Water Quantity.

Wilderness designation would preclude water yield improvement activities in the Sangre de Cristo WSA.

Alpine snowpack management activities, such as snowfences or similar structures, would be incompatible with the wilderness character.

Under Alternatives 3 and 4, or the unsuitable portions under Alternative 2, water resources would continue to be managed under the direction of the Forest Land and Resource Management Plan on National Forest lands and under the direction of the San Luis Management Framework Plan for land administered by the Bureau of Land Management. Water yield improvement activities through vegetation management are anticipated on National Forest lands on the San Isabel National Forest.

The annual water yield on the San Isabel National Forest, under Alternative 1, would continue to be about 79,400 acre-feet per year subject to variations caused by ecological succession. There is a potential to increase yield by 700 acre-feet per year under Alternative 2 and by 1,100 acre-feet with Alternatives 3 and 4.

The water yield on the Rio Grande National Forest could be increased by 1,000 acre-feet per year under Alternatives 2, 3, and 4.

Water Uses and Rights.

A suitable recommendation will affect, although not prohibit, four established water uses.

There are ditches at Little Cottonwood Creek, Denton Creek, Medano Pass, Montez Reservoir, and Hudson Branch. Wilderness designation would not significantly affect the future maintenance methods and/or reconstruction of these facilities or access to them. Maintenance would be scheduled at times other than peak use periods. Selection of Alternative 2, except for the Montez Reservoir ditch, will still impact these facilities and has the same effect as Alternative 1. Selection of Alternatives 3 and 4 will impose no new constraints on the use of these facilities.

There are no current water storage or diversion projects proposed within the WSA.

WILDLIFE AND FISH

The effects of each of the alternatives on wildlife include both beneficial and adverse effects.

If the amount of human use increases dramatically under any alternative, disturbance of wildlife will occur. This will affect historical use patterns by deer, elk, and bighorn sheep. Fish populations could also be affected by increased user pressure. However, limits or controls can be made on the number and activities of users under any alternative.

The State Division of Wildlife in the Comprehensive Management Plan identified needs for population increases for deer, elk, and bighorn sheep and identified habitat improvement opportunities to provide for this. Designation as wilderness will preclude some of man's activities such as timber harvest or other vegetation management practices for habitat maintenance or improvement.

Selection of Alternative 2 would allow vegetation management by timber harvest or prescribed burning on up to 8,400 acres of deer and elk winter range in the WSAs.

Under Alternatives 3 and 4, wildlife habitat management by prescribed burning or timber harvest would be possible on as much as 21,100 acres.

VISUAL RESOURCES

Alternative 1 would place all of the area under a visual quality objective of preservation or retention. Natural landscape character would be maintained by natural ecological changes.

The visual quality objective under Alternative 2 will be preservation or retention for the wilderness portion. The visual quality objective for the nonwilderness portion is in accordance with the management prescriptions to be applied under the Forest Plan. Modification of the existing visual character of the unsuitable portion could occur under some intensive use management activities such as timber harvest or road construction. Under Alternatives 3 and 4 the visual quality objectives would be dependent upon the management prescriptions to be applied in accordance with the Forest Plan.

RECREATION

Alternative 1 would provide for management of recreation opportunities in settings ranging from the heavily used portal areas through very lightly used pristine areas. Under Alternative 1, visitor numbers would have to be controlled to meet user expectations for outstanding solitude opportunities or primitive and unconfined wilderness recreation experiences at the more popular locations. This alternative would also eliminate the existing motorized trail vehicle use of the Comanche-Venable and Lake-of-the-Clouds Trails. This use comprises about 8,200 RVD's annually or about 13 percent of the total use on the eastern slope of the WSA. Although relatively few in number, the four-wheel drive roads which extend into the area which are currently used for recreation access such as the Blue Lake (Como Lake) Road would be closed to motorized use. Current use in the WSA is estimated at 120,200 visitor days per year on National Forest lands which is 40 percent of the wilderness capacity of 302,800 RVD's per year.

Under Alternative 2, the suitable portion would be managed as shown in the Forest Plan to provide semiprimitive, primitive, and pristine wilderness recreation opportunities. The unsuitable portions would continue to be managed for semiprimitive motorized and nonmotorized recreation opportunities. The Lake-of-the-Clouds Trail and Blue Lake Road would be closed to motorized use. The WSA will accommodate approximately 354,500 recreation visitor days (RVD) annually and still provide the desired recreation opportunities and protect resource values under this alternative. Current recreation use is about 34 percent of this capacity.

Under the unsuitable alternatives, the WSA could continue to be managed for semiprimitive motorized and nonmotorized recreation. The area will accommodate approximately 517,900 recreation visitor days (RVD) annually and still provide the desired recreation opportunities and protect resource values. The current recreation use is about 23 percent of this capacity. Continuation of motorized use opportunities tends to support Colorado's State Comprehensive Outdoor Recreation Plan objectives for meeting needs for four-wheel drive and motorcycle use.

NON-FEDERAL OWNED LANDS

Approximately 140 acres of private lands on the San Isabel National Forest and 660 acres of private lands on the Rio Grande National Forest would be included inside the boundary in Alternative 1. These lands include a 130 acre tract west of Blanca Peak and 160 acres in Sand Creek where private land development might be expected. The remainder of the private lands consist of scattered patented mining claims where development could also occur. It would be desirable to acquire private inholdings to prevent access and development impacts which would degrade the wilderness characteristics. In addition to the private lands, there are two valid unpatented mining claims on Crestone Creek where the claimant has retained surface rights.

Alternative 2 would exclude the private lands on the San Isabel National Forest and reduce the included private land area on the Rio Grande National Forest to 516 acres which would still include the Blanca Peak and Sand Creek tracts. The two unpatented mining claims in Crestone Creek would still be included.

Acquisition of private lands to maintain the wilderness environment would not be needed for Pike and San Isabel Forest Lands. Some land acquisition on the Rio Grande portion may be appropriate under Alternative 2.

TRANSPORTATION

The current internal trail transportation system would remain essentially the same under Alternative 1 except for modifications necessary for management of the wilderness and associated resources.

The suitable alternative would block access to privately owned mining claims in the Black Canyon WSA of the Bureau of Land Management.

The Rainbow Trail which delineates the study area boundary on much of the east side crosses several private land tracts without public rights-of-way. At least one landowner has indicated an unwillingness to grant a right-of-way and has requested that the trail be relocated off private land. A wilderness designation, using the WSA boundary, would require rights-of-way across private land or relocation of the trail inside the WSA. Wilderness designation will eliminate the existing motorized use if the trail is relocated inside the WSA.

Alternative 2 will provide for motorized access to management needs on the unsuitable portion to accomplish vegetation management to produce forest products, increase water yield, or to improve and maintain wildlife habitat as indicated in the Forest Plan. When these roads are no longer needed to meet management needs or to provide public access where needed to serve the recommended wilderness portion of the WSA, they would be closed to motorized use.

The boundary modification under Alternative 2 would allow the relocation of the Rainbow Trail around private land while maintaining the option to continue the traditional motorized use to meet Forest Plan objectives.

This alternative would exclude the access routes to patented mining claims in the Bureau of Land Management Black Canyon WSA.

Under Alternative 3, up to 25 percent of the WSA would be served by motorized access for vegetation management to provide forest products, increase water yield, and maintain or improve wildlife habitat. Due to the additional area on which vegetation management may occur, this alternative will provide more public access than Alternative 2. Alternative 3 would allow relocation of the Rainbow Trail to bypass private land while maintaining the option to continue traditional motorized use.

RANGE

Public Law 96-560, Section 108, specifically references grazing regulations applicable to National Forest wildernesses. Grazing is permitted in wilderness and where established will continue to be allowed. However, a recommendation for wilderness, if adopted, will have an effect upon grazing activities, particularly regarding new use, access, and the methods employed in the conduct of range management. Management practices and structural improvements to provide grazing where not currently permitted would not be accomplished.

Current livestock use or management activities will not change significantly with any alternative. Some effects will occur due to limitations on new use, access, and methods of management used under Alternatives 1 and 2. In wilderness, motorized access for range management or maintenance would not be possible in the future where not now established.

Under Alternatives 1 or 2, improvements to increase capacity with intensive range management practices could not be accomplished.

Range management activities would continue in accordance with the Forest Plan. On the unsuitable portion in Alternative 2 or in Alternative 3. Currently, there are no non-structural range improvements planned.

SOCIAL EFFECTS

None of the alternatives would have significant effects on the general population, employment, income or lifestyles in the HRU's unless significant mineral potentials were realized. On an individual basis, a small shift in recreation services opportunities, such as outfitter guide services for example, could occur under alternatives 1 or 2.

All of the alternatives are compatible with county goals and objectives as expressed in their policies and comprehensive plans.

Saguache County expressed concerns, however, in coordination with Federal agencies and in retaining options for vehicular access, multiple use, or mineral resource development. Alternatives 3 and 4 tend to address those concerns.

ECONOMIC EFFECTS

The following Table IV-B shows the economic effects of the alternatives. The economic efficiency analysis was carried out to determine an incremental net present value of wilderness designation for the Sangre de Cristo WSA. Resource outputs for each alternative were estimated and a dollar value was assigned.

TABLE IV-B
ECONOMIC EFFICIENCY ANALYSIS OF SANGRE DE CRISTO
WILDERNESS STUDY AREA

(Values are in millions of real 1978 Dollars, Discounted at 4% and 7 1/8%)

	Alternatives			
	<u>Suitable</u>	<u>Suit.W/Bdy Modification</u>	<u>Unsuitable</u>	<u>Current Management</u>
<u>Resource Outputs</u>				
Timber (MMBF)	0	1.9	3.9	0
Water Yield (MAF)	79.4	80.1	80.5	79.4
Rec-Wild (MRVD)	302.8	245.7	0	0
Disp.Rec (Nonwild)(MRVD)	0	102.8	517.9	517.9
Dev.Recreation (MRVD)	0	0	0	0
Range (MAUM)	6.5	6.5	6.5	6.5
<u>Disc. Benefits 4%(MM\$)</u>				
Timber	0	0.8	1.7	0
Water Yield Incr.	0	0.3	0.5	0
Rec.-Wild.	52.7	42.8	0	0
Rec.-Nonwild.	0	11.2	56.4	56.4
Range	<u>1.5</u>	<u>1.5</u>	<u>1.5</u>	<u>1.5</u>
TOTAL	54.2	56.6	60.1	57.9
<u>Discounted Costs 4%(MM\$)</u>				
Operation & Maintenance	2.7	4.5	9.6	8.1
General Administration	0.5	0.9	1.9	1.6
Capital Investment	0	0	0	0
TOTAL (PVC)	3.2	5.4	11.5	9.7
<u>Economic Measures (4%)</u>				
Total Discounted Benefits (PVB)	54.2	56.6	60.1	57.9
Total Discounted Costs (PVC)	3.2	5.4	11.5	9.7
Present Net Value	51.0	51.2	48.6	48.2
Benefit/Cost Ratio	16.9	10.5	5.2	6.0

TABLE IV-B (Continued)

	Alternatives			Current Management
	<u>Suitable</u>	<u>Suit.W/Bdy Modification</u>	<u>Unsuitable</u>	
<u>Disc. Benefits 7 1/8%(MM\$)</u>				
Timber	0	0.5	1.1	0
Water Increase		0.2	0.3	0
Rec.-Wilderness	33.4	27.1	0	0
Rec.-Nonwilderness	0	7.1	35.7	35.7
Range	0.9	0.9	0.9	0.9
TOTAL	34.3	35.8	38.0	36.6
<u>Discounted Costs 7-1/8%(MM\$)</u>				
Operation & Maintenance	1.7	2.8	6.1	5.1
General Administration	0.3	0.6	1.2	1.0
Capital Investment	0	0	0	0
TOTAL (PVC)	2.0	3.4	7.3	6.1
<u>Economic Measures 7-1/8%</u>				
Total Discounted Benefits (PVB)	34.3	35.8	38.0	36.6
Total Discounted Costs (PVC)	2.0	3.4	7.3	6.1
Present Net Value	32.3	32.4	30.7	30.5
Benefit/Cost Ratio	17.2	10.5	5.2	6.0

As displayed in Table IV-B, resource values were assigned to range and recreation outputs. Wildlife benefits are included in the recreation outputs. Mineral outputs were not valued in the analysis because only their probability of existence was estimated. Quantities of various mineral resources were not estimated due to the lack of detailed information. No values were assigned to the timber resource because there is no demand for the timber products that cannot be met outside of the wilderness study area. From an economic standpoint, if there is no demand for a product, it then has no value. Water was not valued since water yield increases above natural runoff are dependent upon timber harvest programs. Since the timber has no value and will not be harvested, there will be no additional water yield.

The economic efficiency analysis was based on a planning horizon of 50 years. Benefits and costs were estimated for five 10 year periods from 1980 to 2030 and discounted back to the present using a 4 percent and a 7 1/8 percent discount rate because more emphasis is placed on immediate use of resources than future values are lower using the 7 1/8 percent discount rate uses, the higher the discount rate.

Resource values used in the analysis are:

<u>Resource</u>	<u>Units</u>	<u>Value/Unit(\$)</u>
Timber	MCF	68.91
Water	Acre-Foot	19.70
Recreation (Wilderness)	RVD	8.00
Recreation (Nonwilderness)	RVD	5.00
Range	AUM	10.50

WILDERNESS SUITABILITY

The standards to be met by components of the National Wilderness Preservation System were established in the 1964 Wilderness Act. Forest Service Policy requires that capability, availability, and need for wilderness be established in determining the suitability of an area for inclusion in the National Wilderness Preservation System.

The analysis of wilderness suitability on National Forest lands was based on capability, availability and need as primary criteria which were then subdivided into parts for specific analysis as shown under each of the criteria. The Bureau of Land Management, Management Situation Analysis WSA used nine individual criteria. These criteria

were then integrated into the capability, availability, and need criteria for the purpose of analyzing the environmental and administrative consequences of the alternatives on lands administered by the Bureau of Land Management. These criteria are also shown under the capability, availability, and need categories.

WILDERNESS CAPABILITY

Wilderness capability considers the degree to which an area possesses the basic characteristics necessary for wilderness as well as the degree to which an area can be effectively managed for wilderness.

The area must offer opportunities and experiences, or contain values, which are dependent upon or enhanced by a wilderness environment.

Important parts of this criteria include: (a) environment, challenge, outdoor experience opportunities, wildlife, historical and scientific study; and (b) manageability.

Bureau of Land Management criteria for capability include: Evaluation of Wilderness Values, Mineral Resource Values - (Manageability), and Manageability of the Unit as Wilderness.

The Wilderness Attribute Rating System evaluates the parts of the criteria under (a) above and is found in Chapter III. The Sangre de Cristo WSA ranks high in wilderness attributes with a WARS rating of 24 as shown in Chapter III. Outstanding supplemental attributes were also identified. The WSA analysis indicates that the four Bureau of Land Management tracts also have wilderness attributes.

The second element of wilderness capability is "manageability." The following factors were considered in determining the area's manageability.

Ability to manage the area as an enduring resource of wilderness and to protect and manage its natural character.

Recreation, grazing, and other natural resource uses allowed in the Wilderness Act can be managed under alternatives 1 or 2 to maintain the wilderness character on most of the WSA. Surface disturbances relating to mineral development of valid existing rights would be controlled by 36 CFR 228 regulations and the Forest Plan prescriptions but some impacts would be expected. Indications are that impacts from early exploration operations would be minimal, but if a major discovery were made, the impacts of road construction, buildings, utility lines, mine dumps, or other improvements to extract the mineral could be severe.

Size and Shape of the Area.

The Sangre de Cristo WSA contains 217,972 acres and is long and relatively narrow. The Bureau of Land Management lands are four separate

tracts adjacent to the western boundary. Because of their small size, under 5000 acres, the BLM tracts would not qualify for wilderness on their own. The boundary of the area is determined by roads and non-conforming uses in most places rather than by topographic features.

Three portions of the WSA on the eastern slope south of Medano Pass occur as islands topographically isolated from the remainder of the WSA. These portions would be difficult to manage as an enduring wilderness resource due to the small size (less than 5,000 acres) and isolation. There are also several portions of the WSA adjacent to the western boundary where management to maintain the wilderness resource would be difficult. These include areas in Sand Creek, on Milwaukee Hill, and in Wild Cherry Creek. Also, on the western slope, there are three peninsulas which project from the main body of the WSA. These occur in the vicinity of Major Creek, Garner Creek, and Hayden Pass Creek. Boundary adjustments as in Alternative 2 would improve the manageability.

The portion of the Bureau of Land Management Black Canyon tract which lies south of Black Canyon would be difficult to manage as wilderness under Alternative 1 because of the private (patented) inholdings, access to the inholding, and the overall pattern of the land, a long narrow isolated strip. In addition, a 10 acre portion of the South Piney Unit contains an existing road.

Location Relative to External Influences.

The three segments on the San Isabel side of the Sangre de Cristo Range south of Medano Pass are very susceptible to significant external influences because of their isolation from the main body of the WSA and the potential management activities on adjoining state and private lands.

The proximity of the eastern WSA boundary to the Rainbow Trail, with two-wheel motorized use makes the lower elevation portion of this part of the WSA subject to the influence of this use. The Hayden Pass and Medano Pass four-wheel drive roads although not in the study area, cross through the WSA and divide it into three separate portions. These roads are significant external impacts because of heavy use closely paralleling the boundary.

The WSA boundary has been located on United States Geological Survey topographic maps and can be described and located on-the-ground. However, the boundary generally crosses major drainages from point to point and does not follow readily recognizable features such as divides or streams. Therefore, unless it is posted and maintained, it will not be apparent to the wilderness visitor. Much of the boundary is on slopes that do not constitute a recognizable physical barrier to prohibit or act as a shield to protect the wilderness environment.

The BLM Papa Keal tract boundary is difficult to identify and manage because of a lack of physical terrain features and screening from heavy

external use and influences. To effectively manage the area as wilderness, it would be beneficial to change to a geographic boundary at about the 8,200 foot elevation level as Alternative 2.

The boundary generally provides opportunities for transportation access and trailhead facilities from public travel routes to National Forest or Bureau of Land Management lands under Alternative 1 or 2.

WILDERNESS AVAILABILITY

National Forest System land which is determined to meet wilderness capability requirements is generally available for consideration as wilderness. It is, however, conditioned by the value and need for the wilderness resource, compared to the value and need for other resources. To be considered available, wilderness designation must represent the highest and best use of the land over the long run.

Important parts of this criteria include: (a) constraints and encumbrances, (b) incompatible uses (example: mineral rights outstanding), (c) effects that wilderness designation would have on adjacent lands, and (d) the need to intensively manage the area for sustained yield production of resources other than wilderness.

Bureau of Land Management criteria for availability include possible impacts of a wilderness designation on other resources, how the WSA would be managed if not designated as wilderness, and mineral resource values.

Existing Constraints and Encumbrances.

The patented lands, mostly mining claims, may have mineral values which would be affected by wilderness designation. Surface impacts and access needs could also reduce wilderness values. These are significant although about 490 acres can be excluded by a boundary modification.

Activities on the unpatented mining claims are regulated by 36 CFR 228 and management prescriptions in the Forest Land and Resource Management Plan. The effects on mineral values and wilderness would be similar to those of the patented lands.

Only leasing with no surface occupancy stipulations is recommended until Congress acts on the disposition of this area, designates it as wilderness or releases it to multiple-use management. The issuance of mineral leases will be affected by a wilderness designation since the area will not be available for mineral leasing.

Incompatible Uses.

A number of uses not compatible with wilderness character have been identified in the area. (See Figure III-1, Chapter III) The boundary can be modified to avoid some of these conflicts such as roads, ditches, and heavy recreation use. The designation of the entire WSA as wilderness would conflict with the motorized recreation use on the Rainbow Trail due to the need to relocate the trail around private lands. The boundary can be modified to eliminate this conflict.

Effect of Wilderness Designation and Management on Adjacent Lands.

Designation as wilderness would preclude needed wildlife habitat improvement, particularly winter range. This could have an adverse effect on winter range by contributing to overuse of wildlife winter range on adjacent lands. The boundary modifications would help to alleviate this effect.

Value Comparison.

Availability of an area for wilderness designation is determined in part by a comparison of the value and need for the wilderness resource with the value and need for other resources. The values of the wilderness resource, both tangible and intangible, should be greater than the values foregone. Comparative resource outputs and values are displayed in Table A of Chapter II and Table J of Chapter IV.

Alternative 1 provides an opportunity for wilderness recreation experiences to 5,400 people at one time (PAOT) with an annual capacity of about 309,600 recreation visitor days (RVD), whereas Alternative 2 would provide for 6,100 PAOT and 356,400 RVD. Alternative 3 would provide for 10,100 PAOT and 529,600 RVD. The maximum capacity for dispersed recreation use will be less under Alternative 1 in order to maintain wilderness attributes including outstanding opportunity for solitude. Existing motorized recreation use would be eliminated within the WSA boundary. Under Alternative 2, the recreation capacity will be increased and part of the existing motorized use may be continued. The capacity will be greatest with Alternative 3 and the existing motorized use may be continued.

The analysis of the minerals situation indicates a moderate potential for locatable and a low potential leasable minerals. Currently there are no actual producing mineral deposits, but available evidence indicates a possibility of significant values. The potential monetary or employment values are impossible to determine.

Alternatives 1 and 2 will withdraw the recommended area from all forms of mineral activities under the general mining and leasing laws subject to valid existing rights.

Alternatives 1 and 2 would place additional constraints on development of minerals under valid existing rights, by increasing both direct costs and the possibility that a significant discovery may be foregone due to time limitations because of the December 31, 1983, mineral withdrawal date in the Wilderness Act. The unsuitable alternative would allow exploration and development with appropriate stipulations.

Alternative 1 would preclude projects designed to increase water yield. The Alternative 2 would allow projects designed to increase annual water yield by as much as 700 acre-feet per year. Alternative 3 would allow projects to increase water yield by as much as 1,100 acre-feet per year. The additional water yield is important for domestic and agricultural use.

The selection of Alternative 1 would preclude the use of the capable forest land to help meet the need and local demand for forest products. Under Alternative 2, capable forest land with slopes less than 45 percent would be available with a long term sustained yield quantity of 2.8 MMBF per year. The unsuitable alternative would allow utilization of this resource with a sustained yield of 5.8 MMBF per year for capable forest land on slopes less than 45 percent.

Selection of the suitable alternative would allow natural ecological succession to occur but will not allow maintenance and improvement of wildlife winter range and habitat diversity.

WILDERNESS NEED

There must be clear evidence of current or future public need for additional designated wilderness in the general area involved. This need must be demonstrated through the public involvement process. Consultation with others and public involvement are discussed in Chapter VI.

Important parts of this criteria include (a) the location, size, and type of other wildernesses in the general vicinity and their distance from the proposed area; (b) present use and future trends on other wildernesses; (c) the extent to which nonwilderness lands on National Forests and other ownerships can be expected to provide opportunities for solitude or unconfined outdoor recreation experiences; (d) the ability of certain biotic species to compete with more people and more development projects affecting their environment; (e) the need to provide a sanctuary for certain biotic species; and (f) the area's ability to provide for preservation of unique landform types and ecosystems.

Bureau of Land Management criteria for need include: Socio-economic effects, diversity in the National Wilderness Preservation System, consistency with Federal, State, and Local Resource Plans, and public comments.

The RARE II analysis dealt with "wilderness need" on a National basis and included extensive public involvement. This review considers the current and future need for additional designated wilderness in the general vicinity of the Sangre de Cristo WSA in the overall context of the Forest Land Management Plan.

In considering the need for wilderness, the following assumptions were made:

- Visitors to designated wilderness will increase.
- Some undeveloped lands provide opportunities for solitude or a primitive type of recreation outside wilderness.
- Within social and biological limits, management may increase the capacity of established wildernesses to support human use without unacceptable change to the wilderness resource.
- Some biotic species and/or association may require a wilderness environment for survival.

The following factors were considered in determining whether the WSA is needed for wilderness:

Location, size, and type of other wilderness in the general vicinity and their distance from the study area.

Proximity of wilderness is shown in Table B of Chapter III. Wilderness acreage was increased to 2,400,000 acres within 150 airline miles with passage of the Colorado Wilderness Act. However, wilderness is not readily available to the population of southeastern Colorado. The Collegiate Peaks and Great Sand Dunes Wildernesses are both about 2½ plus hours driving time from Pueblo. The Great Sand Dunes Wilderness offers a unique ecosystem of sand dunes and is not duplicated by the Sangre de Cristo or BLM study areas. The eastern boundary of this WSA is about 1½ hours driving time from Pueblo. Alternative 1 or 2 will help provide for the need for additional wilderness in the vicinity.

Present visitor pressure on other wildernesses, trends in use, and changing patterns of use.

Visitor information is summarized in Table IV-C as follows:

TABLE IV-C
WILDERNESS USE INFORMATION

Name of Wilderness	USE (MRVD's)	AREA (acres)	RVD/AC/YEAR
<u>Colorado</u>			
South San Juan	79.5	133,463	0.59
La Garita	32.3	108,486	0.30
Collegiate Peaks	153.2	159,900	0.96
Holy Cross	88.0	116,540	0.76
Lost Creek	56.7	106,000	0.53
Mount Evans	78.0	73,000	1.07
Mount Massive	30.5	26,000	1.17
Hunter-Fryingpan	45.4	74,450	0.61
Maroon Bells	211.3	174,060	1.21
Weminuche	255.4	463,224	0.55
Lizard Head	28.2	40,000	0.70
Mount Sneffels	11.1	16,200	0.69
Big Blue	53.5	97,700	0.58
West Elk	101.5	194,412	0.53
Raggeds	19.0	68,000	0.28
Eagles Nest	78.0	133,688	0.58
<u>New Mexico</u>			
Chama River Canyon	5.6	50,260	0.11
Cruces Basin	1.6	18,000	0.08
Latir Peak	1.5	20,000	0.09
Pecos	198.3	223,333	0.88
San Pedro Parks	50.2	41,132	1.22
Dome	0.2	5,200	0.04
Wheeler Peak	9.5	19,661	0.48

Current use of existing wilderness indicated in Table IV-C is estimated at .67 visitor days per acre. With intensive management and reasonable controls an average of about one visitor day per acre can be accommodated in wilderness areas while maintaining a high quality wilderness resource and meet visitor's expectations of solitude. This indicates a potential user capacity of about 2.4 million visitor days in the 150 mile radius. Present use is about 1.6 million visitor days. This indicates that additional wilderness is not needed at this time; however capacities will be reached in a relatively few years. The proposed additional wilderness from the Sangre de Cristo WSA along with the Greenhorn Mountain WSA and part of the Buffalo Peaks WSA as identified in the Forest Land and Resource Management Plan is expected to meet the Forest needs for wilderness during the Forest Plan period. Proposed

wilderness from other Forest Service study areas along with the potential wilderness in study areas under Bureau of Land Management study can be expected to offer substantial opportunity to meet additional needs for wilderness in the 150 mile radius.

Use trends in the Sangre de Cristo range have shown gradual though not dramatic increases over the years. This trend is expected to continue. Patterns of use would not change significantly by wilderness designation except under Alternative 1 in locales where patterns are associated with motorized use. A local decline in visitor days would take place as that use shifted elsewhere. Based on observations of use resulting in wilderness established in 1980 by the Colorado Wilderness Act, a sudden influx of visitors would not occur on the Sangre de Cristo area as a result of designation.

Lands' ability to provide opportunities for unconfined outdoor recreation experiences.

While the Sangre de Cristo WSA has good capacity to provide for unconfined outdoor recreation opportunities, it is recognized that this capacity is available in the surrounding area. Approximately 248,733 acres of semiprimitive nonmotorized and 537,092 acres of semiprimitive motorized recreation opportunity classes exist on the Pike and San Isabel National Forests outside of wilderness and wilderness study areas.

Ability of biotic species to compete with people and projects.

No threatened or endangered plant species are known to exist in the WSA. However, the alpine ecosystems are fragile. Management practices can protect the plant communities against unacceptable impacts with or without wilderness designation.

The need to provide sanctuary for species that have demonstrated an inability to survive in less primitive surroundings.

No species has been identified that require a wilderness environment for survival. Primitive and low use surroundings, however, can add a level of security for several species. Elk calving and wintering or greenback cutthroat trout management will depend on managed public use. Formal wilderness designation is not essential to maintaining a primitive or semiprimitive setting.

Provide for preservation of unique landform types and ecosystems.

There are no landforms or ecosystems in the Sangre de Cristo WSA that are not currently represented in other wilderness areas. Table I shows a comparison of representative ecosystems and landforms available in the vicinity.

The fescue-mountain muhly prairie ecosystem listed in RARE-II as occurring in the Sangre de Cristo Wilderness Study Area is not a significant feature of the WSA. Although the type does occur at the lower elevations along the northwest edge of the area, it is not a typical representation of that ecosystem.

TABLE IV-D

REPRESENTATIVE ECOSYSTEMS AND LANDFORMS IN THE SANGRE DE CRISTO WSA
 COMPARED TO OTHER WILDERNESS AND WSAS IN THE VICINITY

<u>Ecosystems/ Landforms</u>	<u>Sangre de Cristo WSA</u>	<u>Lost Creek</u>	<u>Collegiate Peaks</u>	<u>Mount Massive</u>	<u>Greenhorn Mountain WSA</u>
Alpine	High	Mod	High	High	Low
Spruce/Fir	High	High	High	High	Mod
Douglas-Fir/ Pine	High	High	Mod	Low	Mod
Aspen	High	High	Mod	Low	Mod
Lodgepole Pine	Mod	Low	Mod	High	Low
Mountain Meadows and grass	Mod	High	High	Mod	Low
High Peaks over 13,000 feet	High	Low	High	Mod	Low
Slide Rock/Out- crops	High	High	High	High	High
Steep Slopes/ Sharp Canyons	High	Mod	High	High	High

Key - Relative Abundancy

High - Abundant
 Moderate (Mod) - Common
 Low - Some Occurrence

SHORT TERM USES OF MAN'S ENVIRONMENT VS. THE MAINTENANCE AND ENHANCEMENT OF LONG TERM PRODUCTIVITY

The short term uses of the environment, either for wilderness or non-wilderness purposes, will maintain or enhance long term productivity. However, the productivity will involve different resources. The use of this WSA for wilderness will maintain and enhance the long term productivity of the environment for wilderness purposes. Under a wilderness recommendation, the long term productivity of forested areas for commodity production will remain static or in many cases decline. The use for nonwilderness purposes will maintain and enhance the long term productivity for water yield, wildlife habitat diversity, wildlife winter range, and insect and disease control through the maintenance of a healthy forest cover.

Designation of the area with boundary modifications as proposed in Alternative 2 will meet goals and objectives of the Forest Plan to provide wilderness and maintain long term productivity where appropriate. However, even under a nonwilderness recommendation some of the land within the WSA would remain in its present condition and will be managed for semiprimitive recreation purposes.

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

With the exception of lost wilderness opportunities and extraction of minerals, there would be no irreversible or irretrievable commitment of resources on the unsuitable area border Alternative 2 or 3. "Irretrievable" refers to temporary losses of resource production resulting from management activities, whereas "irreversible" refers to long-term unavailability of a resource. Mining represents an irreversible commitment of a non-renewable resource. Once minerals are extracted, they become unavailable for any alternative uses they might have. Mining activity would also involve minimal commitments of other resources as areas become disturbed. By using proper reclamation techniques, losses of production can be made short-lived and insignificant in quantity. The wilderness resource could be irreversibly committed, depending on how the unsuitable area was to be managed under Alternative 2 or 3. Development could impact the area to the extent that it no longer qualified for wilderness designation, in which case the wilderness resource would be irreversibly lost.

On the suitable portions under Alternatives 1 and 2, mineral resources could be rendered irretrievably committed following the minerals withdrawal since midnight December 31, 1983. Certain amounts of other resources, including water, livestock forage, and timber would be irretrievably committed as a result of the inability to carry out various management activities in a wilderness area. Irretrievable resources are limited to the difference between quantities produced under the suitable alternative and the unsuitable alternative.

Under the unsuitable alternative, the wilderness character would be maintained until Congress determines otherwise.

ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED

Alternative 1 - Suitable

There may be an increase in the cost of mineral development of valid existing rights because of restricted access and the need for more elaborate mitigation and restoration measures.

There will be a decrease in the likelihood of significant mineral discovery and development because of the withdrawal of lands from mineral activities.

There will be a decrease in total recreation capacity from Alternatives 2 or 3 (RVD's) because of the increased solitude desired for wilderness recreation. There will be a loss of semiprimitive motorized recreation opportunities.

Potential losses in resources such as increased water yield, improved wildlife habitat or improved timber productivity and healthier stands and the loss of economic benefits associated with them would also be considered adverse effects.

Alternative 2 - Suitable with Modification of Western and Eastern Boundaries

There may be an eventual irreversible loss of wilderness character due to vegetation management and mining activity in the portion of the area recommended for nonwilderness management. However on the suitable portion potential losses in resources such as increased water yield, habitat improvement, and timber productivity would result.

There will be a decrease in the cost of mineral development in the portion of the area recommended as suitable for wilderness.

There will be less total recreation capacity than currently exists in order to maintain a quality wilderness opportunity.

Alternative 3 - Unsuitable Alternative

There may be an eventual irreversible loss of wilderness character through vegetation management, mining activities, and other possible high impact uses in the area.

CONFLICTS WITH OTHER GOVERNMENT AGENCY PLANS

There are no known conflicts with plans of other government agencies under the proposed actions. Other agencies if not directly consulted were provided copies of the Draft Study Report and were encouraged to respond. Chapter VI, Consultation With Others, details participation of government entities as well as the public.

APPENDIX A

BUREAU OF LAND MANAGEMENT SITUATION ANALYSIS

Canon City District, Bureau of Land Management
Wilderness Study Areas Contiguous With the
Sangre de Cristo Range

INTRODUCTION

The Bureau of Land Management (BLM) is amending the Royal Gorge and San Luis Valley Management Framework Plans (MFP) in order to determine which Wilderness Study Areas (WSA) within these MFPs should be recommended as suitable or unsuitable for designation as wilderness and inclusion into the National Wilderness Preservation System. Of the eleven WSAs, four units totaling 4,910 acres are less than 5,000 acres and contiguous to the Rio Grande National Forest. These units will be included with the U.S. Forest Service (USFS) study of the Sangre de Cristo Range. Since they are less than 5,000 acres they are being studied under the authority of Section 202 of the Federal Land Policy and Management Act.

The study results on these four units, from this Management Situation Analysis (MSA), are incorporated in the U.S. Forest Service Environmental Impact Statement (EIS) and will become part of a joint recommendation. The Forest Service will be the lead agency with BLM as a cooperating agency.

A public meeting was held in Alamosa in June 1981 to identify issues for the Saguache and San Luis Valley MFP units. The criteria developed from the issues are used in this MSA to analyze each WSA unit.

Guidance for the planning amendment and environmental impact statement comes from the Wilderness Study Policy, the National Environmental Policy Act (40 CFR 1500-1508), and the BLM planning regulations.

GENERAL EXPLANATION OF CRITERIA

All but one of the criteria have information common to each WSA. The following information will clarify the specific criteria and should be applied to each WSA.

CRITERION 1 - Evaluation of Wilderness Values: To help define the primitive and unconfined recreation values for the WSAs the Recreation Opportunity Spectrum (ROS) was used.

In each WSA, different opportunities for primitive and unconfined types of recreation are recognized according to the different types of experiences that can be achieved in each. These vary primarily according to, and are classified by, the activities available and the types of settings in which they can occur.

Six broad classes of recreation opportunities can be identified by the ROS. These are classified according to such factors as remoteness, size, amount of resource alteration, user density, and managerial constraints. The names of these classes merely depict individual categories on this spectrum and do not imply the presence nor the absence of such things as ways, motorized use, or other resource alterations. The Bureau WSAs may include up to five of these classes.

Types of activities available from area to area within each WSA are relatively similar. However, the environmental settings for these activities may vary widely. Recreation opportunity classes describe the differences in setting.

The effects on potential wilderness users and on the types of management that could be applied in each WSA can be described by comparing the relative percentages of each recreation opportunity class included in the various alternatives. Appendix A illustrates how these classes can be used to depict the variety of primitive and unconfined types of recreation included in each WSA alternative.

Under this criteria a unit may be discussed as being "roadless" or containing ways. For the purpose of this document "roadless" (way) is defined as follows: The absence of roads which have been improved and maintained by mechanical means to insure relatively regular and continuous use. A way maintained solely by the passage of vehicles does not constitute a road. For a more detailed definition, refer to "Wilderness Inventory Handbook" on file in the Canon City District Office, Canon City, Colorado.

CRITERION 2 - The Impact Analysis Worksheet is used, for some resources, to help summarize and show impacts. This worksheet describes impacts in a concise, standard method for all resources. The format is read as a sentence from left to right, with a subject (change agent), verb (increase or decrease), object (indicator), and modifiers (quantity, units of change, duration, and relative importance). Change agent refers to the action which causes a change. The indicator is the element of the human environment affected (impacted) by the action. The Change and Context portions of the worksheet describe the magnitude and relative importance of the impact.

Presenting impacts in the format of a simple declarative sentence mirrors the thought process necessary for environmental analysis and helps both the analyst and the reader focus first on the impact (affect) of an action and second on the meaning (consequences) of the impact. Interdisciplinary analysis is enhanced because team members can more easily relate impacts identified by others to their own area of concern. The impacts of an action can then be traced and secondary impacts and their consequences identified. This format hopefully eliminates nonessential discussions and vague qualitative analysis. Data gaps, lack of qualification, and uncertainties are readily identified.

The volume figures listed for timber and woodland resources represent what would be lost as a result of a wilderness designation. The present volume which is currently on the ground as well as over the entire span of rotation is listed. The rotation age volumes include volume removed from the stand at 10-year intervals for thinnings, pest control, removal of dead and inferior trees, etc.; plus the volume of the mature crop of trees which would be harvested at the end of rotation age. These are maximum figures based on intensive forest management under optimum conditions for the sites involved.

CRITERION 3 - Impacts on Wilderness: Future impacts from mineral activity cannot be properly assessed at this time. Should significant mineral values be located in any one WSA, resultant activity could have significant adverse impacts on wilderness values. A U.S. Geological Survey/Bureau of Mines mineral survey will be conducted on all WSAs recommended as suitable for wilderness designation. Consult Criterion 4 for information concerning mineral potential in the WSAs in the San Luis Valley Resource Area (SLRA).

CRITERION 4 - Mineral Values: The wilderness study areas in the Canon City District contain numerous mineral occurrences but no known economic mineral deposits. A mineral occurrence usually has little or no present nor future monetary value. A mineral occurrence may encourage further exploration by its possible relationship to undiscovered economically significant mineral deposits. An economic mineral deposit contains measured ore reserves which can currently be mined and marketed at a profit. Value from a mineral deposit must be at least equal to the following costs in order to be considered economic: exploration, acquisition, development, production, depreciation, transportation, marketing, reclamation, and return on investment. A mineral deposit which cannot pay these costs at the present time remains a valuable reserve for the future. The history of the economics of mining can be summarized as increasing technology and decreasing ore grade. This oversimplification leads to the conclusion that no anomalous concentration of a potentially useful mineral resource should be overlooked.

The wilderness study areas have been subjected to a history of superficial mineral exploration. This type of exploration can only encounter deposits for which evidence exists on the surface. Numerous small surface mineral occurrences have been examined in the past. Exploration concepts and techniques have advanced well beyond the rather primitive methods which have been used in most wilderness study areas. However, evidence is still insufficient to make an absolute statement regarding undiscovered mineralization within the wilderness study areas. It can be stated that no mineral deposits of current or foreseeable economic value are known to exist within the WSA boundaries.

The accompanying text identifies areas which may contain undiscovered energy and mineral resources. Common variety minerals are identified although in these areas they have little present or future value.

CRITERION 5 - Economic Effects: Economic impacts of wilderness designation for each WSA are estimated in four categories. First, effect on local employment and income is depicted assuming there is no significant mineral discovery and development. Second, estimates are made of the annual mineral extraction value necessary to significantly impact (5 percent) the local employment. Third, a discussion of applicable trends in the area indicates the relative importance of additional employment. Fourth, the estimations of national values (discounted at $7 \frac{3}{8}$ percent in perpetuity) which would be gained or lost by the wilderness designation are discussed. Each of these methods is discussed in detail below:

1. Effect of wilderness designation on employment and income:

Local employment and income are compared under the wilderness and nonwilderness alternatives. If either alternative annually contributes greater than five jobs of \$20,000 more than another alternative the difference is considered tangible, although not necessarily significant. The estimate includes expected employment and income changes related to hunting, recreation, timber, firewood, and range. Expected employment and income changes related to mineral production are not considered in these sections because data is unavailable.

The income and employment estimates depict the expected maximum difference between alternatives (exclusive of mineral production) since the results were compared using Bureau of Economic Analysis research. This research has been shown to have higher employment estimates than more recent studies in other geographic areas. Sources for specific employment/production and income/employment ratios vary by resource type.

2. Estimates of mineral extraction values necessary to increase local employment by 5 percent:

Losses to the mineral extraction industry and the resultant impacts on the local, regional, and national economies were not readily identifiable. Therefore, estimations were made of the value and workforce the mineral industry would need for a significant local and regional employment effect to occur. Regardless of significance to an area, any employment is desirable to those unemployed. The estimates are considered the minimum annual extraction values necessary to affect local employment by 5 percent; the actual figure could be almost twice as high. This variance exists for four reasons: First, employment and production rates vary greatly by the type of mineral. Second, the model used was based on Bureau of Economic Analysis research which in other regions has been shown to give a high employment estimate when compared with other models. Third, the model utilized a larger region than the resource area, therefore some impacts will actually be felt in urban centers outside the county in which the proposed wilderness area is located. Similarly, many effects will occur in neighboring counties when a wilderness area is within commuting range of that county. Fourth, San Luis Valley linkages to the mineral industry are based on average figures for the Colorado west slope in the 1970s, due to the lack of available up-to-date data. The mining economic linkages on the west slope will be greater than in the San Luis Valley because more extensive mining and the resulting support services exist on the west slope.

3. Trends relevant to the effect of additional local employment:

The impact of additional employment opportunities will vary from one area to another. Areas which have low unemployment rates may require immigration to fill new jobs, thereby necessitating increased public services. In contrast, an area of high unemployment may fill new jobs from within the community without affecting public services, thereby creating a more positive local impact. Data related to these effects are presented in this section.

4. Estimation of national values:

National values are defined as the net economic gain from an activity. For instance, the value of the additional cattle minus the cost of production would represent the net revenue or economic gain. Activities such as recreation have no market prices, therefore the net gain is what the recreator is willing to pay over and above his or her actual costs for the activity.

Impacts of wilderness designation were identified by comparing the economic value gained or lost resulting from the wilderness designation. Values gained by designation would be primarily to hikers, backpackers, and other wilderness users. Values which would be lost are subcategorized into those requiring BLM investment and those which do not. Data used in this analysis were obtained from each resource specialist, who identified activities lost and planned BLM investments which could not be made if the wilderness alternative were selected.

The reliability of these estimates vary with available resource data. Therefore, the values represent only approximations. National value analysis is incomplete because those estimated are restricted to timber, firewood, range, recreation, and hunting. The results should be used with consideration of the possible values of unmeasured elements. For example, net revenues to mineral and nonuser wilderness preservation benefits are not included in the WSA sections.

The following assumptions were utilized in the analysis:

1. Current values were utilized for recreation and other resources. These relationships are not anticipated to be constant over time, but expected changes are not readily quantifiable. Utilizing Forest Service estimates, it appears timber values will increase sharply compared to wilderness recreation as will both timber and wilderness compared to livestock. However, there should be little influence on the overall results of this analysis.
2. Hikers in wilderness areas are assumed to have selected the area due to wilderness characteristics. If the nonwilderness alternative is to be adopted, it is assumed that all wilderness values would be lost. The degree of loss could vary, therefore, the values for the wilderness alternative may be overstated.
3. If the wilderness alternative is adopted, it is assumed that precluded activities and investments would be lost. To the extent that alternate BLM investments and user activities exist (e.g. off-road vehicle areas) within the region, the costs of the wilderness designation are overstated.
4. Nonuser values for preserving wilderness discounted over time have been identified in a Colorado survey. The estimated preservation values, according to a study by Walsh, Gillman, and Loomis, are at least \$81.00 per acre.

CRITERION 6 - Diversity in the National Preservation System: In identifying ecosystems and landforms in WSAs, the Baily-Kuchler Ecosystem Map was used. This is on file in the Canon City District Office, Canon City, Colorado.

CRITERION 7 - Consistency with Federal, State, and Local Resource Plans: Letters were sent to all counties with wilderness study areas within their boundaries, the Colorado State Clearinghouse, the Pike-San Isabel National Forest, and the Great Sand Dunes National Monument. The letter requested comments on the consistency of possible wilderness designation.

In reviewing the county plans, policies, and programs for consistency with possible designations of wilderness two major problems arose:

1. Statements of policy frequently were in conflict. Support was found for both pro and con wilderness designation. The resolution of these policy conflicts are made after further study on a case-by-case basis.

2. Zoning or desired land use maps are not specific enough to identify consistency. Public lands are lumped as either recreational or agricultural, or they are not designated at all.

A designation of South Piney Creek and Black Canyon, as wilderness, would be inconsistent with most of Saguache Counties adopted "Policies on Intergovernmental Coordination".

No other documents were identified for review.

CRITERION 8 - Public Comments: Several general comments were received concerning personal opinions about wilderness. These comments often were general in nature, many times the comments stated a preference for or against more land being designated as wilderness. These comments were not specific enough to identify with any particular wilderness study area but are a part of the public record of this study. No attempt was made to defend or respond to these comments in this document.

Specific comments received are stated or summarized under the particular WSA. All comments received from the management framework plan process and the inventory and study phase (through December 1981) of the wilderness review process are included in these summaries.

All public comments concerning these WSAs are on file in the Canon City District Office, (BLM) Canon City, Colorado.

CRITERION 9 - Manageability of the Unit as Wilderness: This criterion has no information which is common to all WSAs.

Black Canyon
Unit No. CO-050-131

I. CRITERION 1 - Evaluation of Wilderness Values

Each of the following components contributes to the overall value of an area for wilderness purposes.

A. Quality of the area's mandatory wilderness characteristics

1. Naturalness - This unit (2,300 acres) consists of west-facing slopes of the Sangre de Cristo Range and the relatively flat lands of the San Luis Valley floor. The vegetation consists of pine, fir, and aspen in the higher elevations and drainages; the lower slopes before they meet the valley floor are covered with pinon/juniper.

This unit contains five ways following the main drainages of Lime Canyon, Black Canyon, Orient Canyon, Hot Springs Canyon, and Gardner Creek. All are two wheel tracks leading to the upper elevations of the Sangre de Cristo Range. The beginning portion of the way up Black Canyon is a maintained road which constitutes a part of the unit boundary. These ways are maintained solely by vehicle travel. Because they follow the drainage bottoms and are surrounded by large trees they are only visible from a short distance. The overall influence of these imprints on the naturalness of the unit is minimal.

It would probably not take a lot of labor to rehabilitate the imprints, however, over time they will rehabilitate naturally.

2. Outstanding opportunities for solitude or primitive and unconfined recreation.

a. Solitude - This unit (2,300 acres) is narrow and long in configuration. Topographic screening is available in the larger drainages. In the higher elevations and drainages there is some vegetative screening, however, little to no screening is on the lower elevations which slope to the valley floor.

Outside sights and sounds consist mostly of traffic noise on Colorado Highway 17 and some homes and buildings in the San Luis Valley. There are secluded spots in the unit within the foothills and slopes of the Sangre de Cristo Range. The contours of the land and the dense vegetation provide screening for visitors.

b. Primitive and unconfined recreation - Opportunities for hiking, backpacking, and photography exist along the varied slopes of the Sangre de Cristo Range. However, outstanding opportunities for hiking and backpacking exist primarily because this unit is contiguous to the USFS Sangre de Cristo unit.

Using the ROS there are two opportunity classes in the Black Canyon Unit. Approximately 320 acres are considered to be roaded-natural and the remainder of the unit (1,980 acres) is classified as semiprimitive motorized.

B. Special features: Quality of the area's optional wilderness characteristics.

The scenic quality of the unit is high in the fall when the aspen leaves change color. Since this unit is a logical extension of the Sangre de Cristo Range, it contributes to the scenic quality of the mountain range.

C. Multiple resource benefits: The benefits to other multiple resource values and uses which wilderness designation of the area could ensure.

A wilderness designation would have little or no effect on water quality or watersheds. However, access to the Sangre de Cristo Range for hikers and hunters would remain.

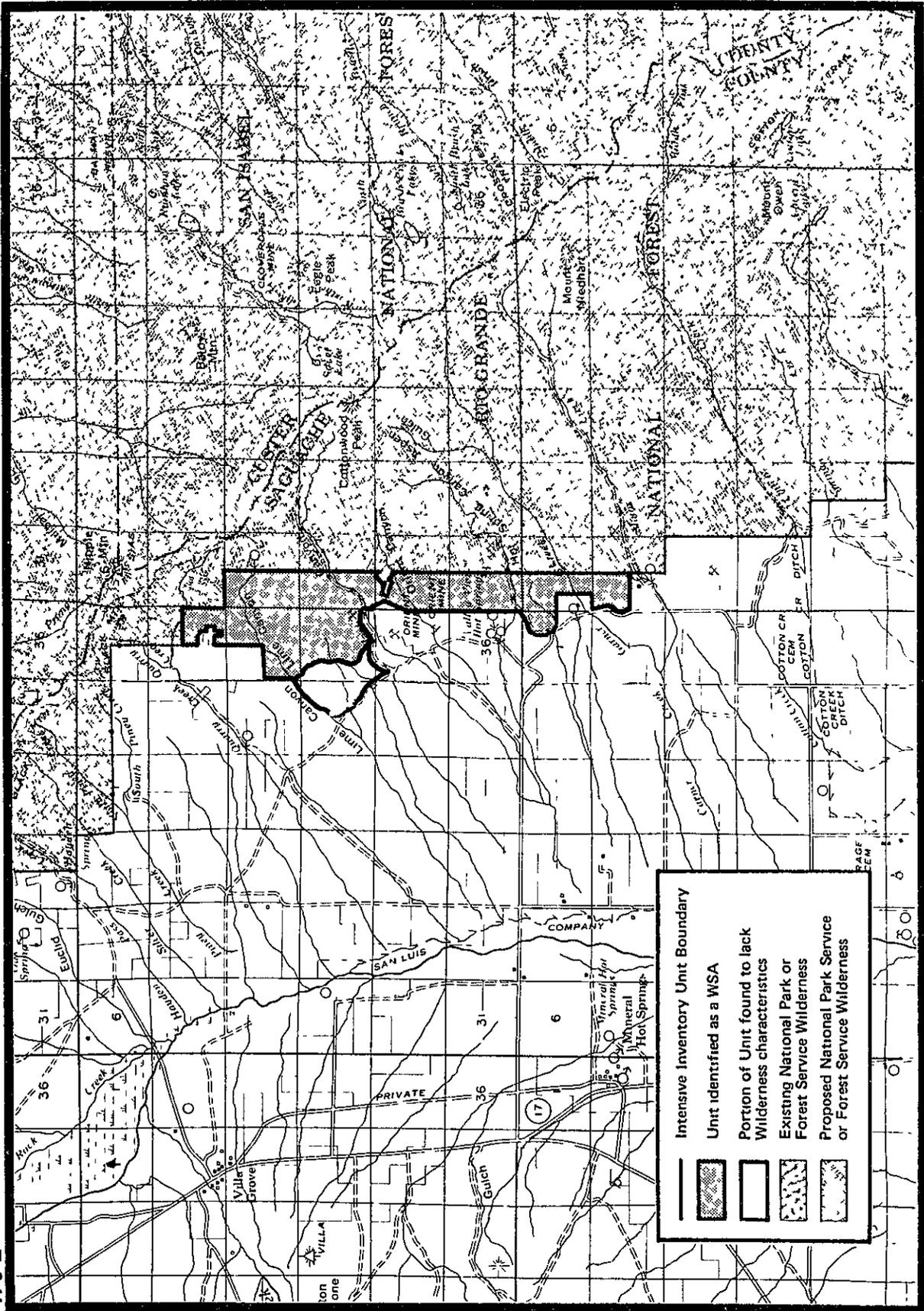
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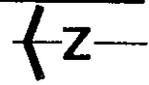
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	Intensive Inventory Unit Boundary
	Unit identified as a WSA
	Portion of Unit found to lack Wilderness characteristics
	Existing National Park or Forest Service Wilderness
	Proposed National Park Service or Forest Service Wilderness



II CRITERION 2 - Possible Impacts of a Wilderness Designation on Other Resources.

A. Range

There are no range improvements proposed for this area. A fence along the north line of Sec. 6, T. 45 N., R. 11 E. requires periodic maintenance to prevent livestock drift.

B. Forestry

There was a timber sale in the area in 1964 to 1966 that yielded approximately 3,000 board feet/acre.. However, all of the WSA has been withdrawn from timber harvest by the timber production capability classification (TPCC) inventory.

Access to firewood cutting on USFS lands would be lost by wilderness designation.

C. Wildlife

There is a 2-acre cooperative wildlife enclosure near the Hot Springs Canyon Road just inside the WSA boundary. This will require periodic maintenance. The unit is considered critical winter range for both deer and elk and yearlong range for antelope. If the area is designated, wildlife would benefit because of less disturbance created from vehicle access.

D. Wildlife (Aquatic)

No impact.

E. Hydrology

No impact.

F. Soils

No impact.

G. Recreational/Visual

Five ways are located within the WSA. Most observed use is by hunters and/or campers traveling to U.S. Forest Service lands. An estimated 410 visitor days would likely be redistributed to Forest Service lands if vehicular access were denied on these routes.

Hiking, backpacking, and photography pursuits would benefit from designation. Formal designation would nationally publicize the site and, as a result, increased use in activities listed above could be expected.

Designation would attract more "outsiders" to the area. Adverse impacts from designation would be experienced mostly by the local populus in the San Luis Valley.

The unit is in a Class II Visual Resource Management zone. Wilderness designation would protect the visual integrity of the area.

IMPACT ANALYSIS

1. Alternative WD 2. Location Black Canyon CO-050-131 EA/EIS No. _____
 3. Activity Subdivisions Recreation/Visual Date _____ Page SL-1

4. Change Agent	5. Increases/ Decreases	6. Indicator	7. Estimated Change	8 Units	9. Probability	10. Context (Relative Importance)
Restricting Motorized Vehicle Use in These Areas:						Duration
Lime Creek	-	Motorized hunting/ camping/ORV use	50	Visitor days	0.6	Permanent Reliability of estimates is low, based on field observations. Although these losses are for motorized recreationists (firewood gatherers, hunters, campers, ORV users, and packers), they will be partially offset by a gradual increase in non-motorized activities, such as foot hunting, hiking, etc.
Black Canyon	-	"	50	"	0.6	"
Hot Springs Canyon	-	"	250	"	0.6	"
Orient Canyon	-	"	30	"	0.4	"
Garner Canyon	-	"	30	"	0.4	" These losses would probably be redistributed to Forest Service lands.
Publicizing area through WD	+	Non-motorized use: hiking, backpacking, photography, x-county skiing	50	Visitor days year/year	0.5	First three years This rate of increase will yield a total of about 250 visitor days after five years, an increase of 180 over the 70 now estimated. This is a 357% increase. (1)
	+	"	15	"	0.8	Fourth & Fifth years
Restricting development	NC	Visual integrity	-	-	-	Permanent Slight improvement over time Would maintain a Class II.
Restricting access below Hot Springs Canyon	-	Human Use	?	?		This would affect access to Forest Service land.

Use a numbered footnote to identify any item or entry that requires further remarks. Write remarks on reverse side.

1. Projections are from: Jungst, Steven, 1978. Projecting future use of National Forest Wilderness system. USFS Cooperative Agreement 13-552.

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III. CRITERION 3 - If this WSA is not Designated, It Would be Managed as Follows:

A. Range

No projects are proposed; maintenance of an existing fenceline would continue.

B. Forestry:

No projects.

C. Wildlife

No projects proposed.

D. Recreation/Visual

This area would remain open to vehicular travel. VRM Class II objectives would be followed.

Summary: Due to the rugged nature of this unit, no facilities are proposed. Some prescribed oakbrush burning may occur, but this possibility is remote.

IV. CRITERION 4 - Mineral Resource Values

This unit consists of Precambrian metamorphic and Paleozoic sedimentary rocks and quaternary alluvial fan deposits. Mineral information for this unit is not complete. At present no economically producible deposits are known to exist in this unit.

A. Critical mineral resource values

In the area of the Orient Mine (west of WSA) and in the south central part of the WSA, small base (lead and copper) and precious metal mines existed at one time. Similar structure and stratigraphy exist elsewhere in the WSA. There is no evidence of present development interest. More exploration would be necessary to determine future feasibility.

B. Energy minerals

This unit is bordered on the west by the Valley View Known Geothermal Resource Area (KGRA) and is within a prospectively valuable area. It is also associated with the Rio Grande rift zone which is considered to have geothermal potential. The potential for development or possible end uses are unknown.

C. Other minerals

Barite has been found as a gangue mineral in small prospect pits. It is low grade and not economically minable.

Gold and silver were apparently produced in conjunction with lead and copper.

The Orient Iron Mine produced in excess of \$100,000 in ore during the early 1900s. Favorable geology appears to extend into this unit. No present nor future market appears to exist.

Sedimentary and metamorphic rocks exist in this WSA. They have potential use as building stone, riprap, road base, etc.

Ordovician and Devonian Carbonate rocks exist on this unit. Various colored "marble" was mined from Steel Canyon (north) in the past.

Stream and alluvial fan deposits of sand and gravel exist within this unit. Quality, quantity, and potential uses are unknown.

The common variety mineral materials within this unit have no known unusual properties. There is no current nor foreseeable market for these materials.

V. CRITERION 5 - Socio-economic Effects

A. Local and regional employment and income effects

Selection of either the wilderness or nonwilderness alternative would have negligible impacts on local employment or income.

B. Mineral impacts

A significant employment impact on Saguache County by the mineral extraction process would require finds producing a value of approximately \$3,600,000 annually. To significantly affect employment in the San Luis Valley mineral extraction producing a value of approximately \$34,400,000 would be necessary. BLM geologists do not believe this additional extraction is likely.

C. Trends

Both Saguache County and the San Luis Valley have significantly lower per capita income than Colorado and the nation. Estimates show this condition is persisting and the gap is widening. Unemployment in the San Luis Valley is significantly higher than the state average, particularly in those counties outside Alamosa County. Population in the county and the area has been stagnant over the last 10 years. These factors indicate the continuation of a depressed economy.

D. National values resulting from wilderness designation

Net benefits to wilderness users are estimated to be nearly \$100,000. Losses to hunters from access restriction are in terms of additional travel and crowding and are not readily quantifiable. It is believed this is significantly under \$100,000.

VI. CRITERION 6 - Diversity in the National Wilderness Preservation System

A. Expanding the diversity of natural systems and features, as represented by ecosystems and landforms.

Black Canyon unit is in the southwestern spruce-fir forest of the Rocky Mountain Forest Province.

In Colorado there are approximately 844,000 acres of existing wilderness and 215,300 acres of WSAs in the southwestern spruce-fir forest vegetative classification of the Rocky Mountain Forest Province.

The region surrounding this unit (which includes the San Luis Valley) is entirely in the Rocky Mountain Forest Province. There are an additional 40,000 acres of spruce-fir forest vegetative classification in the contiguous USFS Sangre de Cristo Range being studied for wilderness potential.

For more detailed information see Appendix B-1

B. Expanding the opportunities for solitude or primitive recreation within a day's driving time (five hours) of major population centers.

This unit can be reached within 1 day of driving from four major population cities: Denver, Boulder, Colorado Springs, and Pueblo. For more detailed information on the relationship of this WSA to other WSAs, designated wilderness, and major population centers, see Appendix B-2

C. Balancing the geographic distribution of wilderness areas.

A "Wilderness Status Map" is available in the BLM Canon City District Office showing the size and location of all Federal lands under study for wilderness designation and all areas either already designated or recommended to Congress as wilderness within the state of Colorado.

VII. CRITERION 7 - Consistency with Federal, State, and Local Resource Plans

Saguache County has no officially approved nor adopted plan dealing with wilderness but has adopted some "Policies on Intergovernmental Coordination." Items concerning wilderness are summarized below.

Multiple use management is favored and existing land uses should be preserved unless they are undesirable from an economical or environmental standpoint.

County officials will not agree to wilderness designation without thorough analysis of impact on local economy, recreation opportunities, and future mineral resource development.

Vehicular access in relation to recreation, agriculture, and forestry activities should be maintained unless it is detrimental to the environment.

New roads should be kept to a minimum and only opened for traffic necessary for use of the land.

Any major changes in land use such as wilderness designation should be discussed with county commissioners.

Changes in AUMs should not be unilateral and permittees/lessees should be given the opportunity to present their expert testimony.

Recreational opportunities should be provided if they do not destroy nor diminish rangeland values or environmental resources.

Mining should be allowed to continue if the impact on water quality, visual resources, and wildlife is kept to a minimum.

VIII. CRITERION 8 - Public Comments

Several general comments were received concerning personal opinion of wilderness in the San Luis Valley.

Two comments were specific to this unit. One comment stated the unit was east of the Mineral Hot Springs and Valley View KGRA and that copper and iron have been reported in the area. The other comment stated there is potential for iron, copper, and gold in the unit.

Both the geothermal potential and the iron, copper, and gold potential have been discussed in the criteria addressing energy and critical mineral resource values.

IX. CRITERION 9 - Manageability of the Unit as Wilderness.

Part, but not all of this unit, is contiguous with lands being studied by the USFS for wilderness potential. Everything south of a point which is one-half mile north of Hot Springs Canyon is a narrow extension of BLM administered land. Approximately one-quarter mile south of Black Canyon is some patented land which extends west through the unit within 175 yards of the boundary. Less than one-quarter mile south of this patented land is the Orient Canyon with a trail providing access to the patented land from the Orient Mine.

BLM land south of Black Canyon would be difficult to manage as wilderness because of the private (patented) inholding, access to the inholding, and the overall pattern of the land. The existing WSA north of Black Canyon is a concentrated pattern of lands all contiguous to the USFS study unit. A more manageable southern boundary would be Black Canyon which would omit approximately 1,200 acres from the unit.

South Piney Creek
Unit No. CO-050-132B

I. CRITERION 1 - Evaluation of Wilderness Values

Each of the following components contributes to the overall value of an area for wilderness purposes.

A. Quality of the area's mandatory wilderness characteristics

1. Naturalness - This unit (870 acres) consists of west-facing slopes of the Sangre de Cristo Range. One peak of the mountain range reaches to 10,620 feet. The vegetation consists of pine, juniper, and fir in the higher elevations with juniper and pine on the north side of the lower slopes and grasses and shrubs on the south side of the slope.

A way crosses the unit along Quarry Creek. The way is used by four-wheel drive trucks, horse riders, and hikers to reach the Black Mountain Trail higher in the Sangre de Cristo Range. This way is the only imprint of man in the unit and is considered to minor as it is hidden by heavy vegetation.

Since the way goes across the southeast corner of the unit it could be omitted from the rest of the unit with a loss of approximately 5 acres and the road could become the unit boundary.

2. Outstanding opportunities for solitude or primitive and unconfined recreation.

a. Solitude - The contours of the land and the vegetation provide screening for visitors. The unit is topographically and visually a logical continuation of the Sangre de Cristo Range. Outside sights and sounds consist mostly from traffic on Colorado Highway 17, the town of Villa Grove, and some other homes and buildings in the San Luis Hills. There are secluded spots in the unit within the drainages as a result of vegetation.

b. Primitive and unconfined recreation - Opportunities for hiking, backpacking, and photography exist along the varied slopes of the Sangre de Cristo Range. However, outstanding opportunities for hiking and backpacking exist primarily because this unit is contiguous to the USFS Sangre de Cristo unit.

The South Piney unit is semprimitive motorized according to ROS classification.

B. Special features: Quality of the area's optional wilderness characteristics.

There are no optional characteristics in this unit.

C. Multiple resource benefits: The benefits to other multiple resource values and uses which wilderness designation of the area could ensure.

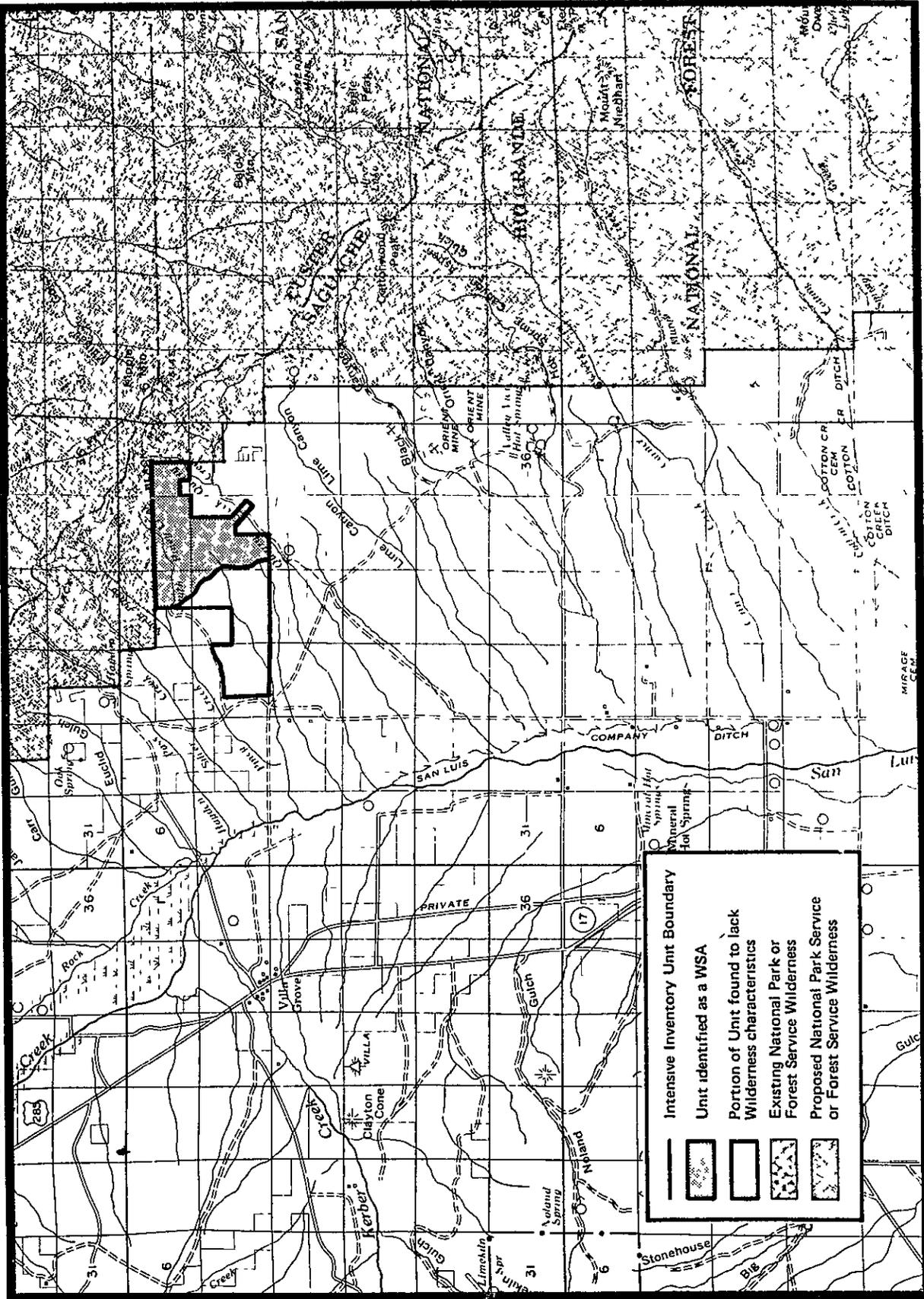
Wilderness designation of this unit would have little or no effect on water quality or watersheds.

Designation would not affect access to the Sangre de Cristo Range for hikers and hunters.

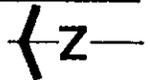
CANON CITY

R 10 E

R 9 E



	Intensive Inventory Unit Boundary
	Unit identified as a WSA
	Portion of Unit found to lack Wilderness characteristics
	Existing National Park or Forest Service Wilderness
	Proposed National Park Service or Forest Service Wilderness



II CRITERION 2 - Possible Impacts of a Wilderness Designation on Other Resources.

A. Range

The WSA is classified as unsuitable for grazing. Cattle do however get onto the area due to the lack of barriers and as a result, light grazing occurs.

B. Forestry

Timber is estimated at about 3,000 board feet/acre on this WSA. However, the terrain is quite rocky and steep (40-50 percent slope) and thus has been withdrawn from timber harvest by the TPCC inventory.

C. Wildlife

This area is designated critical winter range and provides yearlong habitat for deer, elk, and antelope. If the area is designated wilderness,³ harassment of wildlife may decrease because motorized vehicle access would be prohibited.

D. Wildlife (Aquatic)

No impact.

E. Hydrology

No impact.

F. Soils

No impact.

G. Recreation/Visual

The Steel Canyon road is currently used by hunters and other recreationists who utilized two- and four-wheel drive vehicles. Because access is obtained only by permission from the adjacent private landowner, existing use is very light. Wilderness designations would have only very minor positive or negative impacts on recreation use.

The South Piney Creek WSA, located at the base of the Sangre de Cristo Mountains is included in a Class II Visual Resource Management zone. Wilderness designation would enhance VRM objectives.

IMPACT ANALYSIS

1. Alternative WD 2. Location South Piney Creek CO-050-132B EA/EIS No. _____
 3. Activity Subdivisions Recreation/Range Date _____ Page SL-4

1. Change Agent	2. + Increases - Decreases	3. Indicator	4. Change			5. Context (Relative Importance)	
			Estimated Quantity	Units of Measurement	Probability		
Recreation						Duration	
Publicizing through WD	+	Horseparties, back-packing, day hikers	15	Visitor days/year	0.5		A locked gate on private land currently restricts access to about 20 visitor days/year
Restricting vehicle use	-	Motorized Recreationists	20	"		Permanent	
Restricting development/ disturbance	NC	Visual integrity	?				Maintain Class II
Range							
Restricting vehicle use	-	Rancher's Use	?	?			Rancher checks cattle by vehicle
Restricting future water development	-	Livestock	(*)	AUMs			

(*) Figures with this symbol are potential future changes foregone as a result of wilderness designation (WD). They do not reflect direct losses or gains from existing conditions. They are considered under Criterion 6 of the Draft Wilderness Study Policy "The extent to which other resource values or uses of the area would be foregone. . as a result of wilderness designation." Actual estimated effects are specified as direct losses or other changes. They are not marked by this symbol.

C-287

III. CRITERION 3 - If this WSA is not Designated, It Would be Managed as Follows:

A. Range:

No projects.

B. Forestry:

No projects.

C. Wildlife:

No projects.

D. Recreation/Visual

No projects proposed. VFM Class II objectives would not be threatened.

Summary: Motorized vehicle travel would be allowed in the drainages of this WSA. No other projects are proposed. Wilderness values would not be disrupted by designation.

IV. CRITERION 4 - Mineral Resource Values

This unit consists of Precambrian metamorphic and Paleozoic sedimentary rocks. No economically producible deposits are known to exist in this unit. Adequate mineral resource information is currently unavailable.

A. Critical minerals resource values

Traces of galena have been found in prospect pits along the western boundary and may be related to the Sangre de Cristo fault. Further exploration is necessary to determine potential.

B. Energy minerals

This unit has been classified as prospectively valuable for geothermal resources by the USGS. It is within 5 miles of the Valley View KGRA and borders the Rio Grande rift zone (considered as a potential geothermal reservoir). Potential for development is unknown.

C. Other minerals

This unit is 2 miles north of the old Orient Iron Mine which produced more than \$100,000 worth of ore. Favorable geology appears to extend into this unit. No present nor future market is known. Small reserves in an isolated area, low iron content, and more marketable ores elsewhere limit the future value of this area.

Ordovician and Devonian Carbonate rocks exist in this unit. Various colored "marble" reportedly has been produced from Steel Canyon which borders the unit to the south. No market currently exists and is unlikely to develop in the foreseeable future.

Other sedimentary and metamorphic rocks have potential for building stone, riprap, road base, etc. These rocks have no unusual properties. There is no present nor potential market.

V. CRITERION 5 - Socio-economic Effects

A. Local and regional employment and income effects

Selection of either the wilderness or nonwilderness alternative would have negligible impacts on local employment or income.

B. Mineral impacts

Additional annual mineral extraction of approximately \$3,600,000 and \$34,400,000 would be necessary to significantly affect employment in Saguache County and the San Luis Valley respectively. BLM geologists do not believe this additional extraction is likely.

C. Trends

Both Saguache County and the San Luis Valley have significantly lower per capita income than Colorado and the nation. Estimations show that this condition is persisting and the gap is widening. Unemployment in the San Luis Valley is significantly higher than the state average, particularly in those counties outside Alamosa County. Population in the county and the area has been stagnant over the last 10 years. These factors indicate the continuation of a depressed economy.

D. National values resulting from wilderness designation

Net user benefits of wilderness designation are estimated to be approximately \$15,000. Net losses to current users are estimated at \$7,500, assuming there are no other reasonable access points to the Sangre de Cristo Range for hunters. Including the loss of range projects the losses from designation would total \$47,500.

VI. CRITERION 6 - Diversity in the National Wilderness Preservation System

A. Expanding the diversity of natural systems and features, as represented by ecosystems and landforms.

South Piney Creek unit is in the southwestern spruce-fir forest of the Rocky Mountain Forest Province.

In Colorado there are approximately 844,000 acres of existing wilderness and 215,300 acres of WSAs in the southwestern spruce-fir forest vegetative classification of the Rocky Mountain Forest Province.

The region surrounding this unit (which includes the San Luis Valley) is entirely in the Rocky Mountain Forest Province. Along with this unit there are an additional 40,000 acres of spruce-fir forest vegetative classification in the contiguous USFS Sangre de Cristo Range being studied for wilderness potential.

For more detailed information see Appendix B-1.

B. Expanding the opportunities for solitude or primitive recreation within a day's driving time (five hours) of major population centers.

This unit can be reached within 1 day of driving from four major population centers: Denver, Boulder, Colorado Springs, and Pueblo. For more detailed information on the relationship of this WSA to other WSAs, designated wilderness, and major population centers, see Appendix B-2.

C. Balancing the geographic distribution of wilderness areas.

A "Wilderness Status Map" is available in the BLM Canon City District Office showing the location of all Federal lands under study for wilderness designation and all areas either already designated or recommended to Congress as wilderness within the state of Colorado.

VII. CRITERION 7 - Consistency with Federal, State and Local Resource Plans

Saguache County has no officially approved nor adopted plan dealing with wilderness but has adopted some "Policies on Intergovernmental Coordination." Items concerning wilderness are summarized below:

Multiple use management is favored and existing land uses should be preserved unless they are undesirable from an economical or environmental standpoint.

County officials will not agree to wilderness designation without thorough analysis of impact on local economy, recreation opportunities, and future mineral resource development.

Vehicular access in relation to recreation, agriculture, and forestry activities should be maintained unless it is detrimental to the environment.

New roads should be kept to a minimum and only opened for traffic necessary for use of the lands.

Any major changes in land use such as wilderness designation should be discussed with county commissioners.

Changes in AUMs should not be unilateral and permittees/lessees should be given the opportunity to present their expert testimony.

Recreational opportunities should be provided if they do not destroy nor diminish rangeland values or environmental resources.

Mining should be allowed to continue if the impact on water quality, visual resources, and wildlife is kept to a minimum.

VIII. CRITERION 8 - Public Comments

Several general comments were received concerning personal opinion of wilderness in the San Luis Valley.

Two comments were specific to this unit. One comment stated the unit was east of the Mineral Hot Springs and Valley View KGRA and that copper and iron have been reported in the area. The other comment stated there is potential for iron, copper, and gold in the unit.

Both the geothermal potential and the iron, copper, and gold potential have been discussed in the criteria addressing energy and critical mineral resource values.

IX. CRITERION 9 - Manageability of the Unit as Wilderness.

The majority of this unit would be manageable as a wilderness area. However, there is a way in Steel Canyon going across the southeastern corner of the WSA. The way is used by ORV recreationists and hunters in the fall and for access to private land (and the higher elevations of the Sangre de Cristo Range). Considering the use this way receives, it would be more logical to use the way as a boundary. This would only omit approximately 10 acres from the unit and still permit motorized (recreational) use of the way.

I. CRITERION 1 - Evaluation of Wilderness Values

Each of the following components contributes to the overall value of an area for wilderness purposes.

A. Quality of the area's mandatory wilderness characteristics.

1. Naturalness - This unit (1,020 acres) consists of the western facing slopes of the lower portion of the Sangre de Cristo Range. The vegetation on the slopes is a transition from the conifer of the upper Sangre de Cristo Range to the juniper-pine in the lower elevations.

An old fence runs through the middle of this unit. It is in disrepair and has fallen over in some places. Another fence runs along the border between the USFS and public lands. This fence is also in disrepair. These are wire strand and wood pole fences which blend into the existing color of the surroundings.

In the northwest corner of Sec. 28 there is an old log cabin which is falling down due to weathering. Because of its log construction it visually fits into the environment.

The overall influence of human imprints in this unit is not very significant when combined with the contiguous USFS land being studied for wilderness. These imprints will return to a substantially unnoticeable condition by natural processes. A minimal amount of hand labor would be needed to rehabilitate the imprints.

2. Outstanding opportunities for solitude or primitive and unconfined recreation

a. Solitude - Outstanding opportunities for solitude exist within the slopes of the Sangre de Cristo Range. Due to topographic features and vegetation, visitors can easily be screened from one another in approximately 50 percent of the unit.

Outside sights and sounds originate mostly from traffic on Colorado State Highway 150 going to the Great Sand Dunes Wilderness, National Park Service (NPS). The effects of this traffic are not imposing on the solitude of this unit and would not outweigh the benefits of wilderness designation.

b. Primitive and unconfined recreation - This unit, combined with the contiguous USFS unit being studied for wilderness designation, provides outstanding opportunities for hiking, backpacking, and photography.

This unit is classified as roaded-natural.

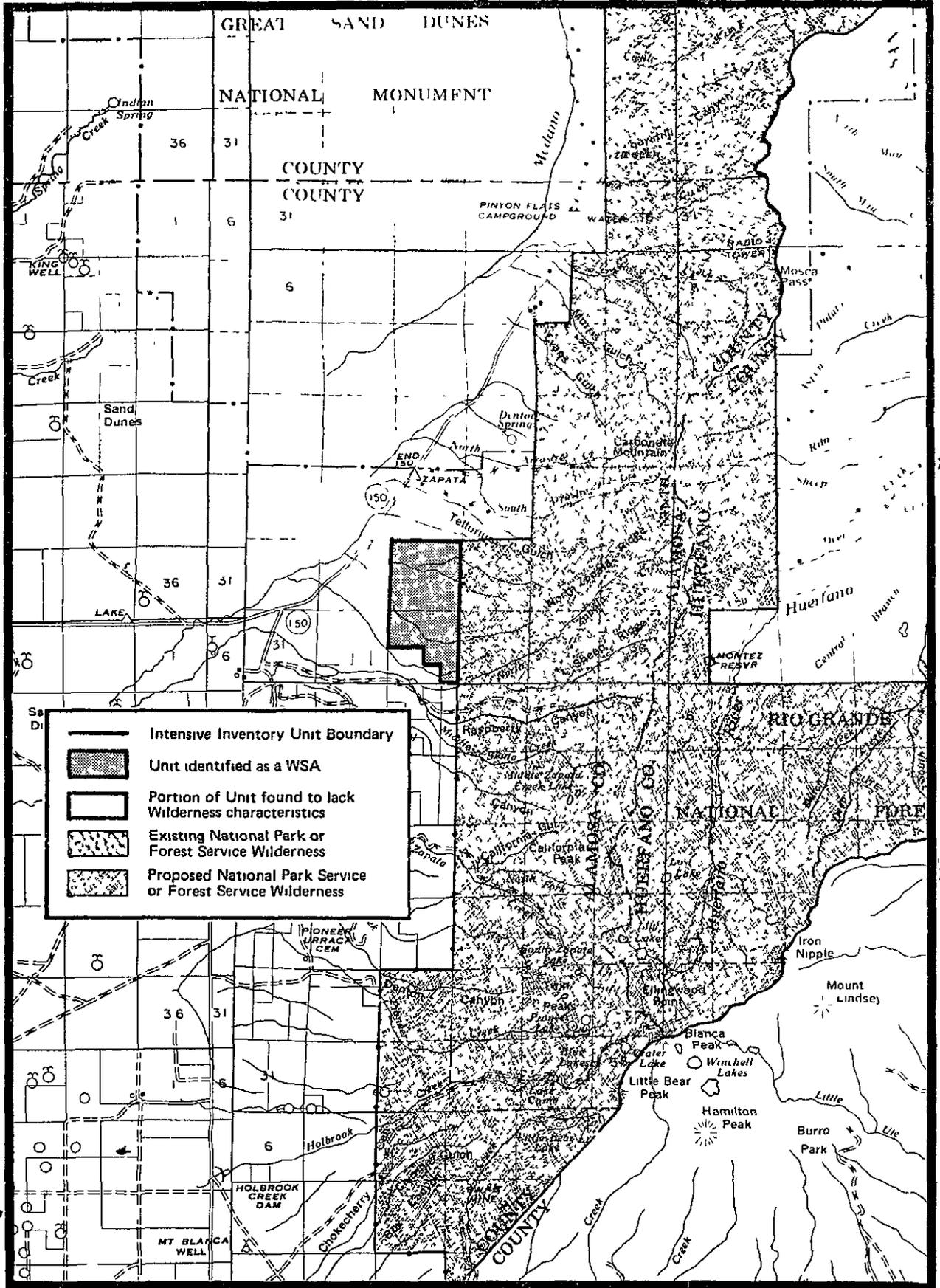
B. Special features: Quality of the areas optional wilderness characteristics.

There are no known special features in this unit.

C. Multiple resource benefits: The benefits to other multiple resource values and uses which wilderness designation of the area could ensure.

Wilderness designation would have little or no effect on water quality, watersheds, or other multiple uses.

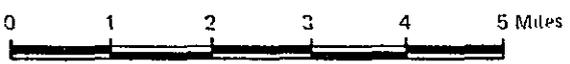
CANON CITY



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7



II. CRITERION 2 - Possible Impacts of a Wilderness Designation on Other Resources.

A. Range

An existing fence within the area is now maintained with the use of vehicles. Wilderness designation would require maintenance be done without motorized vehicles. A small section of pasture fence proposed on the north line of SE1/4SE1/4, Sec. 33, T. 27 S., R. 73 W., would probably not be constructed if this WSA is designated.

B. Forestry

The small amount of merchantable timber in this WSA was withdrawn from timber harvest due to steep, rocky terrain. There is a substantial stand of pinon and juniper that could be developed into a firewood area at a volume of 7 cords/acre.

C. Wildlife

This area is considered critical winter range for deer and elk. It also provides yearlong habitat for both black bear and mountain lion. Wilderness designation would preclude small clearings and thinnings proposed to stimulate the growth of browse, forb, and grass species for big game.

D. Wildlife (Aquatic)

No impact.

E. Hydrology

No impact.

F. Soils

No impact.

G. Recreation/Visual

Wilderness designation would not affect present recreation opportunities. Publicity of designation would not attract any appreciable numbers of recreationists to the site as there are a number of areas nearby with better capability to attract and sustain dispersed recreation use.

This area provides a scenic interface between the Sangre de Cristo Mountains and Colorado State Routes 150 and 17 and U.S. Highway 285. This Class II VRM area would benefit from wilderness designation because surface disturbing activities would not be permitted.

IMPACT ANALYSIS

1. Alternative WD 2. Location Papa Keal CO-050-137 EA/EIS No. _____
 3. Activity Subdivisions Recreation, Range, Wildlife, Forestry, Visual Date _____ Page SL-3

4. Change Agent	5. Increases/ Decreases	6. Indicator	7. Estimated Change	8. Units	9. Probability	10. Context (Relative Importance)
Publicizing area through WD	+	Hikers & Photographers	15	Annual Visitor days	0.4	Permanent This is an increase over current use, estimated at 10-15 visitor days
Restricting motorized vehicles	-	Fence maintenance			"	Small portion of fence is maintained by vehicles
Restricting P-J cutting and vegetative manipulation	-	Deer	(*)	Deer	"	Wildlife effects are "very significant" on local and regional level
	-	Livestock	(*)	?	"	
	-	Firewood	(*)	Cords	"	
Restricting development/manipulation	NC	Visual integrity			"	Maintain visual resource Class II

(*) Figures with this symbol are potential future changes foregone as a result of wilderness designation (WD). They do not reflect direct losses or gains from existing conditions. They are considered under Criterion 6 of the Draft Wilderness Study Policy: "The extent to which other resource values or uses of the area would be foregone... as a result of wilderness designation." Actual estimated effects are specified as direct losses or other changes. They are not marked by this symbol.

C-298

III. CRITERION 3 - If this WSA is not Designated, It Would be Managed as Follows:

A. Range

No future projects are proposed. An existing one-quarter-mile pasture boundary fence would be maintained with the use of vehicles.

B. Forestry

A large woodlands area in this unit would be conducive to the development of a firewood area. The project would be coordinated with wildlife plans for the area.

C. Wildlife

In an effort to increase desirable big game browse, forb, and grass species, it is possible that small clearings in the coniferous tree canopy below 8,400 feet in elevation (primarily pinon/juniper) would be made.

D. Soils/Watershed

The firewood sales and small clearing proposed by wildlife would disturb these resources, but not significantly.

E. Recreation/Visual

Recreation potential of this unit is minimal. Class II VRM values may be jeopardized by the off-road travel, cutting, and other associated activities from potential firewood gathering and pinon/juniper manipulation.

Summary: The pinon-juniper manipulation projects proposed for this unit would obviously intrude upon the naturalness of the unit. Visual integrity may suffer as a result of these projects.

IV. CRITERION 4 - Mineral Resource Values

This unit consists of Precambrian igneous and metamorphic rocks and quaternary alluvial fan materials derived from erosion of the Sangre de Cristo Mountains. There are no known economically producible mineral deposits in this unit. Adequate mineral resource information is not currently available.

A. Critical mineral resource values

There are no critical mineral resource values indicated within this WSA.

B. Energy minerals values

There is some potential for geothermal resources within this WSA. It is located within the Rio Grande rift zone, a recognized potential geothermal reservoir, and is within 8 miles of the former Alamosa County KGRA.

C. Other minerals

There are two inactive gold mines located one-half mile to the northeast of this unit. They are possibly related to faulting which extends into the unit. Exploration is necessary to further determine potential.

Sand and gravel exist as stream and alluvial fan deposits in the northwest part of the unit. Quality, quantity, and potential markets for these deposits are unknown. These deposits have no unique properties and no existing or potential markets.

Igneous and metamorphic rock exists on a portion of the unit. This rock can be used for building stone, riprap, and road base. This material has no unique properties and no known nor potential market.

V. CRITERION 5 - Socio-economic Effects

A. Local and regional employment in income effects

Selection of either the wilderness or nonwilderness alternative would have negligible impacts on local employment or income.

B. Mineral impacts

Additional annual mineral extraction of approximately \$12,600,000 would be necessary to significantly affect Alamosa County employment. To significantly impact employment in the resource area additional annual mineral extraction of approximately \$34,000,000 per year would be necessary. BLM geologists do not believe this additional extraction is likely.

C. Trends

Both Alamosa County and the San Luis Valley have significantly lower per capita income than Colorado and the nation. Estimations show that this condition is persisting and the gap is widening. Unemployment in the San Luis Valley is significantly higher than the state average, particularly in those counties outside Alamosa County. Population in the county and the area has been stagnant over the last 10 years. These factors indicate the continuation of a depressed economy.

D. National values resulting from wilderness designation

Net benefits to wilderness users are estimated to be approximately \$50,000. Net measurable losses to other users are estimated to be less, especially if forestry sales and wildlife projects are not initiated.

VI. CRITERION 6 - Diversity in the National Wilderness Preservation System

A. Expanding the diversity of natural systems and features, as represented by ecosystems and landforms.

As identified by the Bailey-Kuchler Ecosystem map of ecoregions of the United States the Papa Keal unit is in the southwestern spruce-fir forest of the Rocky Mountain Forest Province.

In Colorado there are approximately 844,000 acres of existing wilderness and 215,300 acres of WSAs in the southwestern spruce-fir forest vegetative classification of the Rocky Mountain Forest Province.

The region surrounding this unit (which includes the San Luis Valley) is entirely in the Rocky Mountain Forest Province. Along with this unit there are an additional 40,000 acres of spruce-fir forest vegetative classification in the contiguous USFS Sangre de Cristo Range being studied for potential wilderness designation.

For more detailed information see Appendix B, Table I.

B. Expanding the opportunities for solitude or primitive recreation within a day's driving time (5 hours) of major population centers.

This unit can be reached within 1 day of driving from four major population centers: Denver, Boulder, Colorado Springs, and Pueblo. For more detailed information on the relationship of this WSA to other WSAs, designated wilderness and major population centers, see Appendix B-2.

C. Balancing the geographic distribution of wilderness areas.

A "Wilderness Status Map" is available in the BLM Canon City District Office showing the location of all Federal lands under study for wilderness designation and all areas either already designated or recommended to Congress as wilderness within the state of Colorado.

VII. CRITERION 7 - Consistency with Federal, State and Local Resource Plans

Alamosa County has no officially approved or adopted plan, policy, or program dealing with wilderness.

VIII. CRITERION 8 - Public Comments

Several general comments were received relating personal opinions of wilderness in the San Luis Valley.

One comment specific to this unit was received. It stated the unit was northeast of the Alamosa County KGRA. The comment also stated there was potential for gold in the unit.

IX. Criterion 9 - Manageability of the Unit as Wilderness.

For this unit to be effectively managed as wilderness, it would be beneficial to change from a land status boundary (ownership) to a geographical boundary and would eliminate approximately 400 acres. On the map the 8,200-foot elevation line would be easily identified. On the ground this elevation contour occurs approximately where the flat land ends and the foothills begin and would be easy to identify.

Zapata Creek
Unit No. CO-050-139B

I. CRITERION 1 - Evaluation of Wilderness Values

Each of the following components contributes to the overall value of an area for wilderness purposes.

A. Quality of the area's mandatory wilderness characteristics

1. Naturalness - The two parcels of this unit (720) acres are located on the slopes of the Sangre de Cristo Range. They are steep with the major drainages of Urraca and Zapata Creeks, and Raspberry Canyon cutting through them. The vegetation on the hillsides is mixed conifer with some low growing brush. Visually it is impossible to tell where the lands administered by BLM and the USFS land begin because of similarities of vegetation and land contours.

The southern parcel of this unit shows no imprints of man. The northern parcel contains a way in Raspberry Canyon used by four-wheel drive vehicles as an access route into the higher elevations of the Sangre de Cristo Range. The way is deteriorating through natural processes and is visible for only a short distance because of the surrounding vegetation and terrain.

2. Outstanding opportunities for solitude or primitive and unconfined recreation.

a. Solitude - These two parcels, while small in size, contain varied topography. Screening provided by pinon-juniper and other vegetation as well as adjacent USFS land included in the wilderness study process offers secluded areas for visitors.

Outside sights and sounds originate mostly from the houses and buildings in the valley and Colorado State Highway 150. The effects of these sights and sounds are very minimal.

b. Primitive and Unconfined Recreation - Visitors can hike the stream beds to the higher elevations of the USFS Sangre de Cristo Range.

This unit is considered roaded-natural.

B. Special features: Quality of the area's optional wilderness characteristics.

Even though the Sangre de Cristo Range is known for its scenic beauty, the quality of this WSA is neither abundant enough nor important enough to be considered a supplemental value.

C. Multiple resource benefits: The benefits to other multiple resource values and uses which wilderness designation of the area could ensure.

Wilderness designation would have little or no effect on water quality, watersheds, or other multiple uses.

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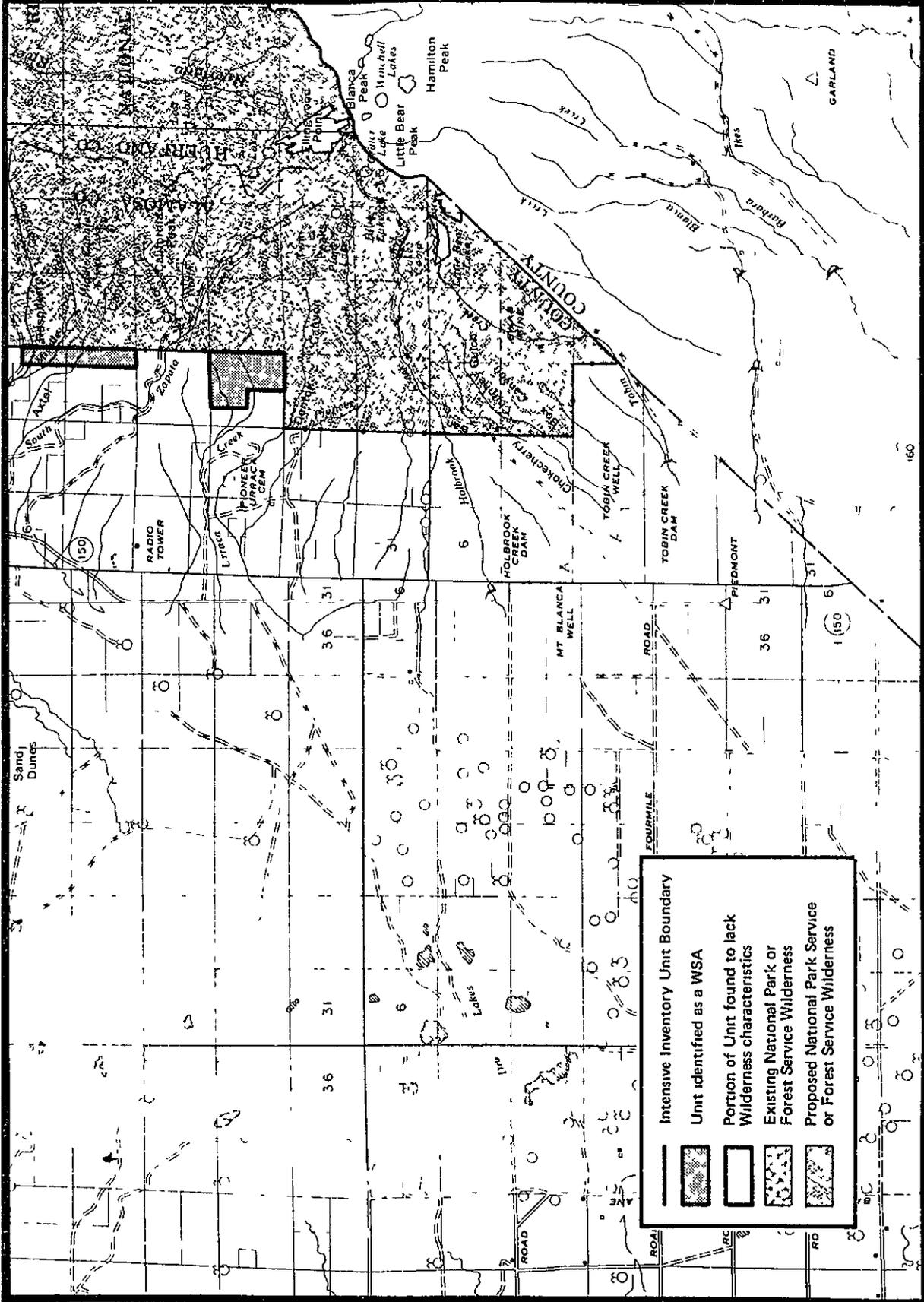
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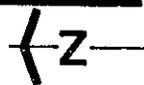
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Intensive Inventory Unit Boundary

- Unit identified as a WSA
- Portion of Unit found to lack Wilderness characteristics
- Existing National Park or Forest Service Wilderness
- Proposed National Park Service or Forest Service Wilderness



II. CRITERION 2 - Possible Impacts of a Wilderness Designation on Other Resources.

A. Range

Wilderness designation would not impact range management. The north portion of the area is classified as unsuitable for grazing; grazing was eliminated for the balance of the area.

B. Forestry

The forest inventory withdrew this unit from timber harvest because of unsuitability. Timber management would not be affected by wilderness designation.

C. Wildlife

The Raspberry Canyon drainage and lands north are identified as critical deer winter range. Wilderness designation precludes motorized vehicle use and would prevent any possible harassment of the deer during this period. No wildlife improvements have been recommended for this area.

D. Wildlife (Aquatic)

No impact

E. Hydrology

No impact

F. Soils

No impact

G. Recreation/Visual

Raspberry Canyon is occasionally used by local "four-wheelers" and cyclists attempting to drive as far as possible up the canyon to hunt, hike, or view. However, because access to the unit is through posted private land, it is not a vital access route and wilderness designation would have a minor impact.

Designation of this parcel along with USFS lands recommended for wilderness would draw attention to the area. Actual recreation use of this parcel would increase little; it would still likely be used primarily as access to USFS lands with better opportunities to attract recreation use.

This unit is rated VRM II. Wilderness designation coincides with VRM objectives for the area.

IMPACT ANALYSIS

1. Alternative WD 2. Location Zapata Creek CO-050-139B EA/EIS No. _____
 3. Activity Subdivisions Visual resources, Recreation Date _____ Page SL-5

4. Change Agent	5. Increases/ Decreases	6. Indicator	7. Estimated Change	8 Units	9. Probability	10. Context <i>(Relative Importance)</i> <i>Duration</i>
Restricting development/ disturbance	NC	Visual integrity				Maintain Class II
Restricting motor vehicles	-	ORV use and wood gathering	20	visitor days/year	0.4	Present recreational use is about 60 visitor days/year
Publicizing area through WD	+	Backpackers/Hikers	50	"	0.5	

Use a numbered footnote to identify any item or entry that requires further remarks. Write remarks on reverse side.

C-307

III. CRITERION 3 - If this WSA is not Designated, It Would be Managed as Follows:

A. Range

There is no grazing in this area.

B. Forestry

No projects

C. Wildlife

No projects

D. Soils/Watershed

There would be no adverse impacts if the area is not designated.

E. Recreation/Visual

The primary recreation attributes of this unit are certain canyons providing access to U.S. Forest Service lands with higher recreation value. However, this attribute is of minor importance because the unit is surrounded by posted, private land. No additional projects are planned. The VRM Class II values would not be disrupted if the area is not designated.

Summary: Vehicular travel in some of the canyons would remain, however, the wilderness features of this unit would not be lost if it is not designated.

IV. CRITERION 4 - Mineral Resource Values

This unit consists largely of Precambrian igneous and metamorphic rocks. No economically producible mineral deposits are known to exist in this unit. Mineral information is considered inadequate.

A. Critical mineral resource values

There are no critical mineral resource values indicated within this WSA.

B. Energy minerals

There is some potential for geothermal resources within this WSA. It is located within the Rio Grande rift zone which is recognized as a potential geothermal reservoir and is within 5 miles of the former Alamosa County KGRA.

C. Other minerals

There is an abandoned gold mine approximately one-quarter mile southwest of this unit. There may be some relation to faulting which extends into the unit. Potential is unknown but probably small. More exploration is necessary to determine potential.

The entire unit consists of igneous and metamorphic rock. These resources can be utilized as building stone, riprap, road base, etc. At present, there is no known potential market or unique properties for this material. The potential for these uses is considered insignificant in the foreseeable future.

V. CRITERION 5 - Socio-economic Effects

A. Local and regional employment and income

Selection of either the wilderness or nonwilderness alternative would have a negligible effect on the local and regional employment and income.

B. Mineral impacts

Additional annual mineral extraction of approximately \$12,600,000 and \$34,000,000 would be necessary to significantly affect employment in Alamosa County and the surrounding San Luis Valley respectively. BLM geologists do not believe this additional extraction is likely.

C. Trends

Both Alamosa County and the San Luis Valley have significantly lower per capita income than Colorado and the nation. Estimations show that this condition is persisting and the gap is widening. Unemployment in the San Luis Valley is significantly higher than the state average, particularly in those counties other than Alamosa County. Population in the county and the area has been stagnant over the last 10 years. These factors indicate the continuation of a depressed economy.

D. National values resulting from wilderness designation

Net benefits of the wilderness alternative to users are estimated at \$60,000. Net losses, primarily to ORV users, would be in the range of \$5,000.

VI. CRITERION 6 - Diversity in the National Wilderness Preservation System

A. Expanding the diversity of natural systems and features, as represented by ecosystems and landforms.

As identified by the Bailey-Kuchler Ecosystem map of ecoregions of the United States the Zapata Creek unit is in the southwestern spruce-fir forest of the Rocky Mountain Forest Province.

In Colorado there are approximately 844,000 acres of existing wilderness and 215,300 acres of WSAs in the southwestern spruce-fir forest vegetative classification of the Rocky Mountain Forest Province.

The region surrounding this unit (which includes the San Luis Valley) is entirely in the Rocky Mountain Forest Province. Along with this unit there are an additional 40,000 acres of spruce-fir forest vegetative classification in the contiguous USFS Sangre de Cristo Range being studied for wilderness potential.

For more detailed information see Appendix B-1.

B. Expanding the opportunities for solitude or primitive recreation within a day's driving time (5 hours) of major population centers.

This unit can be reached within 1 day of driving from four major population centers: Denver, Boulder, Colorado Springs, and Pueblo. For more detailed information on the relationship of this WSA to other WSAs, designated wilderness, and major population centers, see Appendix B-2.

C. Balancing the geographic distribution of wilderness areas.

A "Wilderness Status Map" is available in the BLM Canon City District Office showing the location of all Federal lands under study for wilderness designation and all areas either already designated or recommended to Congress as wilderness within the state of Colorado.

VII. CRITERION 7 - Consistency with Federal, State and Local Resource Plans

Alamosa County has no officially approved or adopted plan, policy, or program dealing with wilderness.

VIII. CRITERION 8 - Public Comments

Several general comments were received relating personal opinions of wilderness in the San Luis Valley.

One comment was received which was specific to this unit. It stated the unit was northeast of the Alamosa County KGRA. The comment also stated there was potential for gold in the unit.

Geothermal and gold potential has been discussed in the criteria addressing energy and critical mineral resource values.

IX. CRITERION 9 - Manageability of the Unit as Wilderness.

This unit could be managed as wilderness. There are no logical geographic boundaries that could be easily identified by the average user on the ground. Therefore, the existing WSA boundary is reasonable.

ROS SETTING OPPORTUNITY CLASSIFICATION MATRIX

CRITERION NAME		SETTING OPPORTUNITY CLASS CRITERIA					
		Required Setting Opportunity Standards by					
		P (Primitive)	SPNM (Semi Prim. Non Motor)	SPM (Semi Prim. Motorized)	RN (Roaded Natural)	SU (Semi Urban)	U (Urban)
Physical	Remoteness (sights and sounds of man-mites or equivalent screening depending on landscape) (see also road detls on continuation sheet)	≥ 3 miles from any constructed road & 1/4 mile from any primitive road or way. No noticeable visual nor audio intrusions in fg or mg (incl primitive roads or ways that are closed to public use).	≥ 1/4 mile from any road. No noticeable visual nor audio intrusions in fg or mg (incl primitive roads or ways that are closed to public use).	≥ 1/4 mile from any secondary or improved road. No noticeable visual nor audio intrusions in fg or mg (from other than motorized recreation use).	≥ 1/4 mile from any primary road. No visual intrusions in the fg.	≥ 0 miles from any road (if all roads are acceptable).	≥ 0 miles from any road (if all roads are acceptable).
	Size of Area (acres)	≥ 2000	≥ 2500	≥ 2500	≥ 1	≥ 1	≥ 1
	Irreversible Evidence of Man (lines, reservoirs, roads, etc which cannot be feasibly obliterated)	up to 1% of area	up to 2% of area	up to 5% of area	up to 25% of area	up to 50% of area	up to 100% of area
	Man-caused Noise Water and Air Pollution (ie non-recreational noise factors caused by recreation users and considered under the Social and Managerial settings below)	Any air, water and/or noise pollution present will have significant impact on quality of Experience Opportunities for this class.	Any air, water and/or noise pollution present will have significant impact on quality of Experience Opportunities for this class.	All water and/or noise pollution are low in intensity and frequency.	All water and/or noise pollution are moderate in intensity or common in frequency of occurrence.	Air, water and/or noise pollution are high in intensity or frequency.	Air, water and/or noise pollution are intense or frequent. They are readily discernible and would cause extreme conflicts with desires for Experience Opportunities for the P to RN classes.
	Reversible Resource Modification (as in the above delineate areas of homogeneity)	Essentially unmodified. Limited and subtle improvement of fish/wildlife populations.	Predominantly unmodified. Limited and subtle improvement of fish/wildlife pops.	Predominantly unmodified. Occasional improvement of fish/wildlife pops.	Predominately natural environment includes rural and pastoral landscapes. Modifications evident but harmonious with the natural environment. Substantial improvement of fish/wildlife pops.	Substantially modified. Modifications to enhance rec activities and yet to maintain soil and vegetative cover. Large-scale improvement of fish/wildlife pops.	Substantially urbanized but background may have natural elements. Modifications to enhance rec activities. Vegetation landscaped & rustic. Soil hard surfaced and/or terraced.
	Degree of resource modification permissible. Subtle (eg seeding selective cutting, grazing and burns etc) Obvious (eg chaining clear cut, new burns/watershed projects etc)	up to 30% up to 1%	up to 70% up to 2%	up to 70% up to 3%	up to 70% up to 25%	up to 100% up to 50%	up to 100% up to 100%
	Facility/ Site Management (Physical Features)	Only those essential for resource protection and visitor safety. Const of on-site materials. No facility for user comfort or convenience.	For protection of resources & user safety. Const of on-site materials where possible.	Primarily for protect of resources & user safety, but these may also enhance recreation. Const of on-site materials where possible. Motorized use here.	Facilities provided for user convenience, safety, resource protection & enhanced rec. Support. Sometimes group facility. Motorized use may be in facility design.	Considerable number for use by large nos of users. Often large for spec activities. Facility provide for intensified motorized use and parking.	Considerable number for use and convenience if large nos of people. Includes electrical hookups & contemporary services. Facility highly intensifies motor use and parking. Avail w/forms of mass transport often avail through site.
	Level of development and action possible						
	1 Harden site	Subtle drainage practice to control erosion.		Heavy grade. 11 in minimum cover & over story.	Instal durable natural surfaces. Fertilization. Irrigation.	Install durable non-native or synthetic surfaces.	
	2 Channel Use	Primitive trails for resource prot only. Brochure.	Const trails & barriers of on-site materials for resource protection & safety.	Const primitive roads and trails very low. Primitive conforming barriers and bridges only as necessary.	Native landscape vegetation. Limited exotics but must be conforming. Rustic barriers, bridges etc. Includes all but primary & secondary trails.	Native or exotic landscape species. Rustic/modern barriers, roads, bridges etc.	All of these facilities may be modern/urban. Can use all techniques to construct.
3 Develop facilities	Log bridges. No site development at all.	Some wooden directional signage. Primitive facility for forest and visitor safety. Very limited site devel.	Back country campsites except for primitive site facility. 3 sites/acre.	Rustic site development for low mod user densities. 1.2 sites/acre. Provide concessionaire facility. Provide activity oriented trail facility. Provide interpret facility.	Facility to enhance recreation oppor rustic/modern. Moderate high densities. 1.2 sites/acre. Provide concessionaire facilities. Visitor center develop.	> 1 site/acre.	
Social	User Evidence (Evaluate in terms of presence of trails, litter, no campsites & fire rings, man-caused noise and other evidence). Relative Quantity	Group spacing informal and dispersed to minimize contact frequency. Low concentration and minimal evidence. Very little evidence.	Allows formalized group spacing in disperse use. Evidence of others is observable. Few signs.	Allows formalized group spacing to disperse use. Evidence of others is observable. Same.	Moderate evidence of sights and sounds of man & these usually harmonious w/ natural environment. Common.	Sights and sounds of man are readily evident. Much.	Sights and sounds of man are predominant. Abundant.
	Frequency of Encounters (Spatial relation of individuals & groups in terms of no of encounters with others). (Consider no parties encountered, no contacts no other seen etc). (Consider also: density volume and separation)	1-2 parties/day in the back country and at commonly used sites.	5 parties/day on the back country trailhead fringe.	Low to moderate contact frequency.	Frequency of contact is Mod in developed sites and on roads and trails. Low to Mod away from developed sites and facilities.	Frequency of contact is: Mod to High in developed sites on roads & trails & water surf. Mod; away from developed sites.	Large numbers of users on site and in nearby areas.
	User Density (see also continuation sheet) (PARTS persons at one time/acre)	Low: 002 High: 025	Low: 008 High: 083	Low: 008 High: 083	Low: 083 High: 2500	Low: 830 High: 7500	Low: 1667 High: 15000
Managerial	Managerial Constraints and Noticeability (Direct Regulation of Use (behavioral regulation, user choice restricted). 1 Increase enforcement.	Free from evidence of man induced restrictions & controls. Motorized use not permitted. Increase surveillance of area.	On site restrictions and controls present but subtle. Motorized use not permitted.	On site restrictions and controls present but subtle.	On-site controls are noticeable and offer a sense of security but they harmonize with the natural environment.	Controls obvious and numerous largely in harmony with the man-made environment.	Controls obvious and numerous but largely man-made.
	2 Zone Use			Impose fines for violation.	Zone incompatible uses spatially & seasonally in a rustic manner.	Zone incompatible uses spatially & seasonally.	
	3 Restrict Use Intensity	Limit party size. Limit duration of site occupancy.	Assign group use areas. Limit overnight use areas to developed sites. Rotate use areas.			Reservations can be required.	
	4 Restrict Activities	Restrict location of camping. Restrict hunting/fishing.			Restrict general fire arms use.		
	Indirect Regulation of Use (behavioral modification, user free to choose)			Advertise over/under used areas.	Identify specific area attributes.		
	1 Inform users	Identify range of rec opportunities in area. Educate users to ecological concepts.					
2 Set eligibility requirements				Entrance fees can be charged.			

* Generally 1 1/2 mi in rolling to open terrain

NOTE Other names have also been used for some of the ROS classes. These include Natural (also called Rural and Roaded Natural), Semi Urban (also called Semi Rural and Rural) and Urban (also called Modern Urban).

State Ecosystem/Landform Representation

Existing Representation in Statutory Wilderness

A. Ecosystem/Landform		Other Agency Areas		
No.	NAME	Agency	No.	Acreage
M 3110	Rocky Mountain Forest Province			
13	Grand Fir-Douglas Fir Forest	USFS	9	174,329
"	"	"	10	159,900
"	"	"	11	74,450
"	"	"	12	126,000
"	"	"	13	133,915
"	"	"	1	68,000
"	"	"	15	26,000
14	Western Spruce Fir Forest	USFS	14	235,230
"	"	"	16	140,972
"	"	"	17	76,394
"	"	"	18	50,675
"	"	"	19	8,910
"	"	"	21	70,000
"	"	"	13	100,436
M 3110	Rocky Mountain Forest Province			
14	Western Spruce Fir Forest	USFS	18	10,000
"	"	"	24	30,000
"	"	"	12	14,000
"	"	"	15	15,000
"	"	"	10	25,000
"	"	"	1	51,000
"	"	"	2	145,809

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State Ecosystem/Landform Representation

Existing Representation in Statutory Wilderness

A. Ecosystem/Landform		Other Agency Areas		
No.	Name	Agency	No	Acreage
17	Pine Douglas Fir Forest	USFS	23	12,000
"	"	"	25	40,000
"	"	"	7	55,000
"	"	"	2	24,301
20	Southwestern Spruce-Fir Forest	USFS	3	8,000
"	"	"	8	15,000
"	"	"	3	65,092
"	"	"	4	73,275
M 3110	Rocky Mountain Forest Province			
20	Southwestern Spruce-Fir Forest	USFS	5	11,340
"	"	"	6	28,000
"	"	"	7	327,180
"	"	"	8	91,000
"	"	"	9	113,314
"	"	"	10	111,930
21	Juniper-Pinyon Woodland	NPS	2	11,180
34	Saltbrush-Greasewood	NPS	1	33,000
45	Alpine Meadows and Barren	USFS	18	16,875
"	"	"	19	990
"	"	"	20	14,100
"	"	"	13	33,478
"	"	"	18	10,000
"	"	"	21	25,000
"	"	"	15	11,000

State Ecosystem/Landform Representation

Existing Representation in Statutory Wilderness

A. Ecosystem/Landform		Other Agency Areas		
No.	Name	Agency	No	Acreage
M 3110	Rocky Mountain Forest Province			
45	Alpine Meadows and Barren	USFS	10	10,000
"	"	"	5	32,000
"	"	"	7	15,000
"	"	"	8	20,000
"	"	"	1	17,000
"	"	"	2	24,302
"	"	"	3	43,394
"	"	"	4	24,425
"	"	"	5	4,860
"	"	"	6	12,000
"	"	"	7	140,220
"	"	"	8	39,000
"	"	"	9	61,015
"	"	"	10	47,970
P 3130	Colorado Plateau Province			
21	Juniper-Pinyon Woodland	NPS	3	8,100

STATE ECOSYSTEM/LANDFORM REPRESENTATION

B. ECOSYSTEM/LANDFORM		REPRESENTATIONS IN WILDERNESS ENDORSED BY PRESIDENT - PENDING BEFORE CONGRESS					
No	NAME	BLM AREAS		OTHER AGENCY AREAS			
		No. Areas	Acreage	Agency	No.	Acreage	
M	Rocky Mountain						
3110	Forest Province						
14	Western Spruce Fir Forest			NPS	1	131,896	
21	Juniper Pinyon Woodland			NPS	2	105,500	
45	Alpine Meadows and Barren			NPS	1	131,896	
49	Sagebrush Steppe			NPS	2	105,500	
P	Colorado Plateau						
3121	Province						
21	Juniper Pinyon Woodland			NPS	3	20,445	

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STATE ECOSYSTEM/LANDFORM REPRESENTATION

C. ECOSYSTEM/LANDFORM		POTENTIAL SOURCES OF REPRESENTATIONS						
NO	NAME	BLM WSA's			OTHER AGENCY WSA's			
		DISTRICT	NO.	ACREAGE	AGENCY	FOREST, PARK, REFUGE	NO.	ACREAGE
M 3110	Rocky Mountain Forest Province							
31	Mountain Mahogany -Oak Scrub	Montrose	251	1,104				
"	"	"	252	1,223				
32	Great Basin Sagebrush	"	265	844				
"	"	"	265A	468				
"	"	"	265D	751				
"	"	"	290	1,277				
34	Saltbrush- Greasewood	"	286	11,498				
"	"	"	353	5,450				
"	"	"	370B	9,504				
"	"	"	388	1,012				
P 3130	Colorado Plateau Province							
21	Juniper-Pinyon Woodland	Montrose	251	5,888				
"	"	"	252	4,672				
"	"	"	262	7,596				
"	"	"	265A	4,121				

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STATE ECOSYSTEM/LANDFORM REPRESENTATION

C. ECOSYSTEM/LANDFORM		POTENTIAL SOURCES OF REPRESENTATIONS						
NO	NAME	BLM WSA's			OTHER AGENCY WSA's			
		DISTRICT	NO.	ACREAGE	AGENCY	FOREST, PARK, REFUGE	NO.	ACREAGE
P 3130	Colorado Plateau Province							
21	Juniper-Pinyon Woodland	Montrose	265D	7,634				
"	"	"	286	4,927				
"	"	"	290	24,273				
"	"	"	300	7,270				
"	"	"	353	5,450				
"	"	"	370B	1,056				
"	"	"	388	19,228				
17	Pine-Douglas Fir Forest	"	251	368				
"	"	"	252	425				
"	"	"	286	274				
M 3110	Rocky Mountain Forest Province							
32	Great Basin Sage Brush	Montrose	089	2,507				
17	Pine-Douglas Fir Forest	"	089	12,535	USFS	Piedra	2-292	12,450
"	"	"	286	274				
21	Juniper-Pinyon Woodland	"	286	4,380				

STATE ECOSYSTEM/LANDFORM REPRESENTATION

C. ECOSYSTEM/LANDFORM		POTENTIAL SOURCES OF REPRESENTATIONS						
NO	NAME	BLM WSA's			OTHER AGENCY WSA's			
		DISTRICT	NO.	ACREAGE	AGENCY	FOREST, PARK, REFUGE	NO.	ACREAGE
M 3110	Rocky Mountain Forest Province							
31	Mountain Mahogany -Oak Scrub	Montrose	286	821	USFS	West Needles	2-303	9,480
20	Southwestern Spruce-Fir Forest	"	085	370	"	Cannibal Plateau	218	15,995
"	"	"	086	900	"	Fossil Ridge	204	37,290
"	"	"	088/213	1,840	"	Piedra	2-292	29,050
"	"	"	089	22,563	"	Oh-Be-Joyful	2-181	3,000
"	"	"	208	6,086				
"	"	"	211	1,476				
"	"	"	217	706				
"	"	"	229A	2,890				
"	"	"	229B	2,270				
"	"	"	230B	3,100				
"	"	"	238B	92				
"	"	"	241	4,715				
45	Alpine Meadows and Barren	"	089	12,535	USFS	West Needles	2-303	6,320
"	"		208	34,489	"	Cannibal Plateau	218	15,995

STATE ECOSYSTEM/LANDFORM REPRESENTATION

C. ECOSYSTEM/LANDFORM		POTENTIAL SOURCES OF REPRESENTATIONS						
NO	NAME	BLM WSA's			OTHER AGENCY WSA's			
		DISTRICT	NO.	ACREAGE	AGENCY	FOREST, PARK, REFUGE	NO.	ACREAGE
M 3110	Rocky Mountain Forest Province							
45	Alpine Meadows and Barren	Montrose	211	164	USFS	Fossil Ridge	204	16,410
"	"	"	217	4,004				
"	"	"	229A	2,890	USFS	Oh-Be-Joyful	2-181	2,500
"	"	"	229B	2,270				
"	"	"	230B	3,100				
"	"	"	238B	1,748				
"	"	"	241	14,145				
17	Pine-Douglas Fir Forest	Canon City	002	7,000	USFS	San Isabel and Rio Grande N.F.	2-266	30,000
"	"	"	013	17,000	"	San Isabel N.F.	2-270	22,000
"	"	"	014	11,000	"	"	2-271	21,000
"	"	"	017	10,000				
"	"	"	016	20,000				
14	Western Spruce- Fir Forest	"	016	6,000	USFS	Pike and San Isabel N.F.	2-250	25,000
20	Southwestern Spruce-Fir Forest	"	131	2,000				
"	"		132B	1,000				

STATE ECOSYSTEM/LANDFORM REPRESENTATION

C. ECOSYSTEM/LANDFORM		POTENTIAL SOURCES OF REPRESENTATIONS						
NO	NAME	BLM WSA's			OTHER AGENCY WSA's			
		DISTRICT	NO	ACREAGE	AGENCY	FOREST, PARK, REFUGE	NO	ACREAGE
M 3110	Rocky Mountain Forest Province							
20	Southwestern Spruce Fir Forest	Canon City	137	1,000	USFS	San Isabel and Rio Grande N.F.	2-266	40,000
"	"	"	139B	1,000				
34	Saltbrush- Greasewood	"	135	1,000				
46	Fescue Mountain Muhly Prairie	"	135	600				
"	"	"	141	10,000				
45	Alpine Meadows and Barren	"			USFS	San Isabel and Rio Grande N.F.	2-266	15,000
"	"				"	Pike and San Isabel N.F.	2-250	31,000
21	Juniper Pinyon Woodland	Craig	208	10,587				
"	"	"	214	25,000				
"	"	"	224-224A 226-228,229	11,320				
"	"	"	230	12,000				
"	"	"	002	6,000				
"	"	"	001	5,000				
"	"	"	003	8,000				
"	"	"	007C	9,932				

STATE ECOSYSTEM/LANDFORM REPRESENTATION

C. ECOSYSTEM/LANDFORM		POTENTIAL SOURCES OF REPRESENTATIONS						
NO	NAME	BLM WSA's			OTHER AGENCY WSA's			
		DISTRICT	NO.	ACREAGE	AGENCY	FOREST, PARK, REFUGE	NO.	ACREAGE
M 3110	Rocky Mountain Forest Province							
21	Juniper-Pinyon Woodland	Craig	007C	12,274				
49	Sagebrush Sierpe	"	208	4,000				
"	"	"	214	6,480				
"	"	"	224, 224A 226, 228, 229	11,320				
"	"	"	00N4B	4,100				
"	"	"	230	2,081				
"	"	"	002	7,368				
"	"	"	001	6,777				
"	"	"	003	5,740				
31	Mountain Mahogany Oak Scrub	"	046	17,740				
14	Western Spruce Fir Forest	"	155	8,250				
"	"	"			USFS	Vasquez/ St. Louis Peak	-	6,400
"	"	"			"	Williams Ford	-	56,076
"	"	"			"	Service Creek	-	39,860
45	Alpine Meadows and Barren	"			"	Vasquez/St. Louis Peak	-	6,400
"	"	"			"	Williams Fork	-	18,693

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STATE ECOSYSTEM/LANDFORM REPRESENTATION

C. ECOSYSTEM/LANDFORM		POTENTIAL SOURCES OF REPRESENTATIONS						
NO	NAME	BLM WSA's			OTHER AGENCY WSA's			
		DISTRICT	NO.	ACREAGE	AGENCY	FOREST, PARK, REFUGE	NO.	ACREAGE
P 3120	Colorado Plateau Province							
21	Juniper-Pinyon Woodland	Grand Junction	009	21,050				
"	"	"	031	33,195				
"	"	"	066	26,525				
"	"	"	133	18,150				
"	"	"	133A	49,200				
"	"	"	130	21,500				
"	"	"	132	26,050				
"	"	"	132A	3,120				
"	"	"	150	31,990				
"	"	"	150A	11,600				
"	"	"	176	17,480				
M 3110	Rocky Mountain Forest Province	"						
17	Pine-Douglas Fir Forest	"	392	330				
		"	421	15,518				
		"	425	3,360				

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Appendix B-2

A. PROXIMITY TO POPULATION CENTERS								
UNIT NUMBER	TOTAL ACRES	Population Centers Within One Day's Travel Time of WSA's	Statutory Wilderness Within One Day's Travel Time of Identified Population Centers					
		Names of Cities and States	BLM			Other Agency		
			State	No.	Acreage	State	No.	Acreage
CO-030	None	Denver/Boulder SMSA				CO-USFS	2	194,412
		"				"	1	68,000
		"				"	9	174,329
		"				"	10	159,900
CO-030-085	350	Colorado Springs SMSA				CO-USFS	4	97,700
086	880	"				"	7	467,400
088/213	1,840	"				"	8	130,000
208	32,800	"				CO-NPS	2	11,180
211	1,640	"				CO-USFS	3	108,486
217	3,400	"						
229A	5,780	"						
229B	4,200	"						
230B	5,640	"						
238B	1,840	"						
741	16,100	"						
388	50,140	"						
089	20,240							

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A. PROXIMITY TO POPULATION CENTERS								
UNIT NUMBER	TOTAL ACRES	Population Centers Within One Day's Travel Time of WSA's	Statutory Wilderness Within One Day's Travel Time of Identified Population Centers					
		Names of Cities and States	BLM			Other Agency		
			State	No.	Acreage	State	No.	Acreage
CO-050-002	6,468	Boulder SMSA				CO-NPS	1	33,000
013	16,800	"				CO-USFS	18	67,500
014	11,220	"				"	23	9,400
016	26,150	"				"	21	70,000
017	10,200	"				"	24	73,000
131	2,300	"				"	25	106,000
132B	870	"				"	15	26,000
135	1,644	"				"	10	159,900
137	1,020	"						
139B	720	"						
CO-050-002	6,468	Fort Collins SMSA				CO-USFS	18	57,500
013	16,800	"				"	23	9,400
014	11,220	"				"	21	70,000
016	26,150	"				"	24	73,000
017	10,200	"				"	25	106,000
						"	15	26,000
						"	10	159,900

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A PROXIMITY TO POPULATION CENTERS								
UNIT NUMBER	TOTAL ACRES	Population Centers Within One Day's Travel Time of WSA's			Statutory Wilderness Within One Day's Travel Time of Identified Population Centers			
		Names of Cities and States	BLM			Other Agency		
			State	No.	Acreage	State	No.	Acreage
CO-050-002	6,468	Greeley SMSA				CO-USFS	18	26,000
013	16,800	"				"	23	9,400
014	11,220	"				"	21	25,000
016	26,150	"				"	24	73,000
017	10,200	"				"	15	26,000
						"	10	80,000
						"	25	106,000
CO-050-002	6,468	Denver SMSA				CO-NPS	1	33,000
013	16,800	"				CO-USFS	18	26,000
014	11,220	"				"	23	9,400
016	26,150	"				"	21	25,000
017	10,200	"				"	24	73,000
131	2,300	"				"	25	106,000
132B	870	"				"	15	26,000
135	1,644	"				"	10	80,000
137	1,020	"				"	3	100,000
139B	720	"						

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A		PROXIMITY TO POPULATION CENTERS						
UNIT NUMBER	TOTAL ACRES	Population Centers Within One Day's Travel Time of WSA's			Statutory Wilderness Within One Day's Travel Time of Identified Population Centers			
		Names of Cities and States	BLM			Other Agency		
			State	No.	Acreage	State	No.	Acreage
CO-050-141	10,240	Albuquerque N.M , SMSA				CO-USFS	8	90,000
CO-050-002	6,468	Colorado Springs, SMSA				CO-NPS	1	33,000
013	16,800	"				CO-USFS	18	26,000
014	11,220	"				"	23	9,400
016	26,150	"				"	21	25,000
017	10,200	"				"	24	73,000
131	2,300	"				"	25	106,000
132B	870	"				"	15	26,000
135	1,644	"				"	10	80,000
137	1,020	"				"	3	100,000
139B	720	"				"	7	130,000
141	10,240	"				"	8	90,000
CO-050-002	6,468	Pueblo, SMSA				CO-NPS	1	33,000
013	16,800	"				CO-USFS	18	26,000
014	11,220	"				"	23	9,400
016	26,150	"				"	21	25,000
017	10,200	"				"	24	73,000

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A PROXIMITY TO POPULATION CENTERS								
UNIT NUMBER	TOTAL ACRES	Population Centers Within One Day's Travel Time of WSA's			Statutory Wilderness Within One Day's Travel Time of Identified Population Centers			
		Names of Cities and States	BLM		Other Agency			
			State	No	Acreage	State	No.	Acreage
CO-050-131	2,300	Pueblo SMSA				CO-USFS	25	106,000
132B	870	"				"	15	26,000
135	1,644	"				"	10	80,000
137	1,020	"				"	3	100,000
139B	720	"				"	7	130,000
144	10,240	"				"	8	90,000
CO-010-208	14,587	SMSA's :						
214	31,480	Salt Lake City, Ogden, Ut.						
224	4,340	Provo-Orem, Ut.						
224A	1,320	Grand Junction, CO						
226	4,880	"						
N4B	4,100	"						
001	11,777	"						
002	13,368	"						
003	13,740	"						
007A	9,932	"						
007C	12,274	"						
046	17,740	"						
CO-010-230	14,081	SMSA's :						
229y	6,900	Salt Lake City- Ogden Ut.						
228	5,700	Provo-Orem, Ut.						
		Colorado Springs, CO.						
		Denver-Boulder, CO						
		Grand Junction, CO.						
		Fort Collins, CO						

A

PROXIMITY TO POPULATION CENTERS

UNIT NUMBER	TOTAL ACRES	Population Centers Within One Day's Travel Time of WSA's		Statutory Wilderness Within One Day's Travel Time of Identified Population Centers				
		Names of Cities and States	BLM			Other Agency		
			State	No.	Acreage	State	No.	Acreage
CO-010-155	8,250	SMSA's :				CO-USFS	14	235,230
		Fort Collins,				"	16	140,970
		Colorado Springs				"	17	76,394
		Denver - Boulder				"	18	67,500
		Grand Junction				"	22	9,900
						"	20	14,100
						"	21	70,000
						"	13	33,915
CO-070-009	21,050	SMSA's.				CO-USFS	9	174,329
031	33,195	Denver - Boulder				"	10	159,900
066	26,575	Colorado Springs				"	11	74,450
113	18,150	Ft. Collins				"	12	126,000
113A	49,200	Greeley				"	13	133,915
130	21,500	"				"	14	235,230
132	26,050	"				"	1	68,000
132A	3,120	"				"	15	26,000
150	31,990	"						
150A	11,600	"						
176	17,480	"						
392	330	"						
421	15,518	"						
425	3,360	"						
430	15,000	"						
433	11,940	"						

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B		PROXIMITY TO POPULATION CENTERS						
UNIT NUMBER	TOTAL ACRES	Population Centers Within One Day's Travel Time of WSA's	Statutory Wilderness Within One Day's Travel Time of Identified Population Centers					
		Names of Cities and States	BLM			Other Agency		
			State	No.	Acreage	State	No.	Acreage
CO-010-208	14,587	SMSA's				CO-NPS	2	211,000
214	31,480	Salt Lake City - Ogden , Ut.						
224	4,340	Provo-Orem, Ut.						
224A	1,320	Grand Junction, CO						
226	4,880	"						
N4B	4,100	"						
001	11,777	"						
002	13,368	"						
003	13,740	"						
007A	9,932	"						
007C	12,274	"						
046	17,740	"						
CO-010-155		SMSA's: Fort Collins Colorado Springs Denver - Boulder Grand Junction				CO-NPS	1	263,792
CO-050-002	6,468	Denver - Boulder SMSA				CO-NPS	1	125,000
013	16,800	Pueblo SMSA						
014	11,220	"						
016	26,150	"						
017	10,200	"						
131	2,300	"						
132B	870	"						
135	1,644	"						
137	1,020	"						
139B	720	"						

B		PROXIMITY TO POPULATION CENTERS						
UNIT NUMBER	TOTAL ACRES	Population Centers Within One Day's Travel Time of WSA's	Statutory Wilderness Within One Day's Travel Time of Identified Population Centers					
		Names of Cities and States	BLM			Other Agency		
			State	No.	Acreage	State	No.	Acreage
CO-050-002	6,468	Fort Collins - Greeley SMSA				CO-NPS	1	125,000
013	16,800							
014	11,220							
016	26,150							
017	10,200							
CO-070-141	10,240	Denver SMSA				CO-NPS	1	125,000
		Pueblo SMSA						
CO-050-009	21,050	SMSA's:				CO-NPS	3	20,445
031	33,195	Denver-Boulder						
066	26,525	Colorado Springs						
113	18,150	Fort Collins						
113A	49,200	Greeley						
130	21,500	"						
132	26,050	"						
132A	3,120	"						
150	31,990	"						
150A	11,600	"						
176	17,480	"						
392	330	"						
421	15,518	"						
425	3,360	"						
430	15,000	"						
433	11,740	"						

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C PROXIMITY TO POPULATION CENTERS								
UNIT NUMBER	TOTAL ACRES	Population Centers Within One Day's Travel Time of WSA's			Statutory Wilderness Within One Day's Travel Time of Identified Population Centers			
		Names of Cities and States	BLM			Other Agency		
			State	No.	Acreage	State	No.	Acreage
CO-030	None	Denver - Boulder SMSA				CO-USFS	204	54,700
CO-030-085	350	Colorado Springs SMSA				CO-USFS	218	41,500
086	880	"						
088/213	1840	"						
208	32,800	"						
211	1,640	"						
217	3,400	"						
229A	5,780	"						
229B	4,200	"						
230B	5,640	"						
238B	1,840	"						
241	16,100	"						
089	50,140	"						
388	20,240	"						
CO-010-155	8,250	SMSA's:				CO-USFS	-	12,800
		Fort Collins				"	-	74,770
		Colorado Springs				"	-	39,860
		Denver - Boulder						
		Grand Junction						
CO-050-013	16,800	SMSA's				CO-USFS	2-250	56,000
014	11,200	Denver - Boulder				"	2-266	85,000
016	26,150	Colorado Springs				"	2-270	27,000
017	10,200	Pueblo				"	2-271	21,000
131	2,300	"						
132B	870	"						
135	1,644	"						
137	1,020	"						
139B	720	"						

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C

PROXIMITY TO POPULATION CENTERS

UNIT NUMBER	TOTAL ACRES	PROXIMITY TO POPULATION CENTERS						
		Population Centers Within One Day's Travel Time of WSA's			Statutory Wilderness Within One Day's Travel Time of Identified Population Centers			
		Names of Cities and States	BLM			Other Agency		
State	No.		Acreage	State	No.	Acreage		
CO-050-013	16,800	SMSA's:				CO-USFS	2-250	56,000
014	11,220	Fort Collins				"	2-266	85,000
016	26,150	Greeley				"	2-270	22,000
017	10,000							
CO-050-141	10,240	Albuquerque, N.M.						
CO-070-009	21,050	SMSA's:				CO-USFS	2-177	8,000
031	33,195	Denver - Boulder						
066	26,525	Colorado Springs						
113	18,150	Fort Collins						
113A	49,200	Greeley						
130	21,500	"						
132	26,050	"						
132A	3,120	"						
150	31,990	"						
150A	11,600	"						
176	17,480	"						
392	330	"						
421	15,518	"						
425	3,360	"						
430	15,000	"						
433	11,940	"						

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Note: Lists are to be used for identification purposes in Table II A,B
and Table IV A,B.

USFS Designated Wilderness

1. Raggeds
2. West Elk
3. La Garrita
4. Big Blue
5. Mt. Sneffels
6. Lizard Head
7. Weminuche
8. South San Juans
9. Maroon Bells - Snowmass
10. Collegiate Peaks
11. Hunter - Frying pan
12. Holy Cross
13. Eagles Nest
14. Flat Tops
15. Mt. Massive
16. Mt. Zirkel
17. Rawah
18. Comanche Peaks
19. Nesta
20. Never Summer
21. Indian Peaks
22. Nepta
23. Cache La Poudre
24. Mt. Evans
25. Lost Creek

National Park Service Designated Wilderness

1. Great Sand Dunes
2. Black Canyon of the Gunnison
3. Mesa Verde

USFS Administratively Endorsed Wilderness

none

USFS Potential Wilderness

1. Piedra
2. West Needles
3. Cannibal Plateau
4. Fossil Ridge
5. Oh-Be-Joyful
6. Vasquez/St. Louis Peak
7. Williams Fork
8. Service Peak
9. Spruce Creek

NPS Administratively Endorsing Wilderness

1. Rocky Mountain National Park
2. Dinosaur National Monument
3. Colorado National Monument

Appendix C

WILDERNESS DESIGNATION SUMMARY - CRITERION 6

WSA's

Affected Resource Values	Units	Browns Canyon	McIntyre Hills	Lower Grape Creek	Beaver Creek	Upper Grape Creek	Black Canyon	South Piney Creek	Sand Castle	Papa Keal	Zapata Creek	San Luis Hills	Totals
Peregrine falcon	Falcons/yr		+ ?	+ ?		+ ?							
				(*)		(*)							(*)
Wild Turkey	Turkeys/yr			100		100							200
				(3)		(3)							(3)
Game Fish	lbs/ave/yr			60		60							120
				(3)		(3)							(3)
Non-game Fish	lbs/ave/yr			60		60							120
Hydrologic condition	?	?	?	?		?							
Thunderstorm runoff and erosion	?	?	?	?		?							
Motorized recreationists/hunters	visitor days/year	-100	-20	(4) -263	-10	(4) -410	(5) -20	-15			-20	-275	-1133
				(4)		(4)	(5)				(7)	(7)	(4) (5) (7)
Hikers, Backpackers, Photographers	visitor days/year	100	60	110	840	250	15	15	15	50	165		1620
Visual integrity	VR class	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	(6)	
Picnicking & camping	annual vists				-1188								-1188

NC = NO CHANGE

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WILDERNESS DESIGNATION SUMMARY - CRITERION 6

Affected Resource	Units	WSA's										Totals	
		Browns Canyon	McIntyre Hills	Lower Grape Creek	Beaver Creek	Upper Grape Creek	Black Canyon	South Finney Creek	Sand Castle	Papa Keal	Zapata Creek		San Luis Hills
Values													
Livestock grazing	AUM's/year	0.0	(*) 80	(*) 20	(*) 80	(*) 100		(*) ?		(*) ?			(*) 280
Construction contracts	Dollars	0.0	20,000	24,000	55,000	20,000							119,000 (*)
Sawtimber (1)	mm bd-ft (2)	1.56 (*)	5.332 (*)	8.558 (*)	4.044 (*)	22.066 (*)							41.56 (*)
	acres	(*) 65	(*) 571	(*) 389	(*) 177	(*) 1003							(*) 2,205
(1)	(2)	(*)	(*)	(*)	(*)	(*)			(*)		(*)		(*)
Cordwood	cords	88,930	27,370	43,930	75,670	21,206			(*) ?		(*) ?		258,106 (*)
	acres	(*) 3,910	(*) 1,190	(*) 1,190	(*) 3,290	(*) 922							(*) 11,222
Economic opportunity	Dollars	?	?	?	?	?							
Forest Insects and disease	?	?	?	?	?	?							
Mule deer	Deer/yr	(*) 20	(*) 65	(*) 100		(*) 75				(*) ?			(*) 260
Bighorn Sheep	Sheep/yr	(*) 15	(*) 15										(*) 30
Other Wildlife	?	?										(*) ?	

FOOTNOTES TO CRITERION 6 SUMMARY TABLE

- (1) This value is for present boundary of Beaver Creek WSA. Foregone values for amended boundaries are - 1.274 mm bd. ft. and - 57 acres for sawtimber. There would be no charge for cordwood woodland.
- (2) Board-feet and cord values are at rotation age, not present values.
- (3) Future fish values foregone would be 50 lbs/ave and actual losses due to existing stream deterioration would be an additional 20 lbs/ave. The reverse is true for non-game species. (Implementation of the MFP would relieve non-game species by 50 lbs/ave. Net change in values due to wilderness designation would be an addition 60 lbs/ave).
- (4) Values for Upper and Lower Grape Creek are combined. Visitor day losses due to restrictions on motorized vehicle are - 130 real losses of trail bikers (100) and hunters (30) plus a foregone future loss of 133 additional trail bike visitor days.
- (5) It is estimated that this will be the increased usage after five years.
- (6) Wilderness designation would enhance the visual resource Class II zone.
- (7) Usage after first four years.

LOST CREEK FURTHER PLANNING AREA REPORT

Pike National Forest

Park County

Colorado

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LOST CREEK FURTHER PLANNING AREA REPORT

CHAPTER I

PURPOSE AND NEED

INTRODUCTION

As a result of the Forest Service Roadless Area Review and Evaluation (RARE II) completed in 1979, the Lost Creek inventoried roadless area was allocated to three categories; nonwilderness, wilderness, and further planning. Congress, in the Colorado Wilderness Act of December 22, 1980, (P.L. 96-560) established the Lost Creek Wilderness. While considering the areas recommended for wilderness, Congress also considered the Further Planning Area (FPA) and included a substantial part of the FPA within the Lost Creek Wilderness.

The Lost Creek Further Planning Area considered in this study report is the portion of the original Further Planning Area which Congress did not designate as wilderness in the Colorado Wilderness Act. The area includes approximately 20,723 acres in the Pike National Forest. (Figure 1.)

This report is based on the Draft Environmental Impact Statement (DEIS) for the Pike and San Isabel National Forests Proposed Land and Resource Management Plan; public comment on the Proposed Plan (Chapter VI of the Final EIS); and the Forest Plan planning records.

NATURE AND PURPOSE OF ACTION

The purpose of this report is to display the analysis used to develop a determination on the suitability or unsuitability of the Lost Creek FPA for inclusion in the National Wilderness Preservation System, as well as consideration of the area for all uses including wilderness within the Forest Land and Resource Management planning process.

This study is being made within the Forest Land and Resource Management Plan required for National Forest System lands by the Forest and Rangeland Renewable Resources Planning Act (RPA) of 1974 as amended by the National Forest Management Act (NFMA) of 1976.

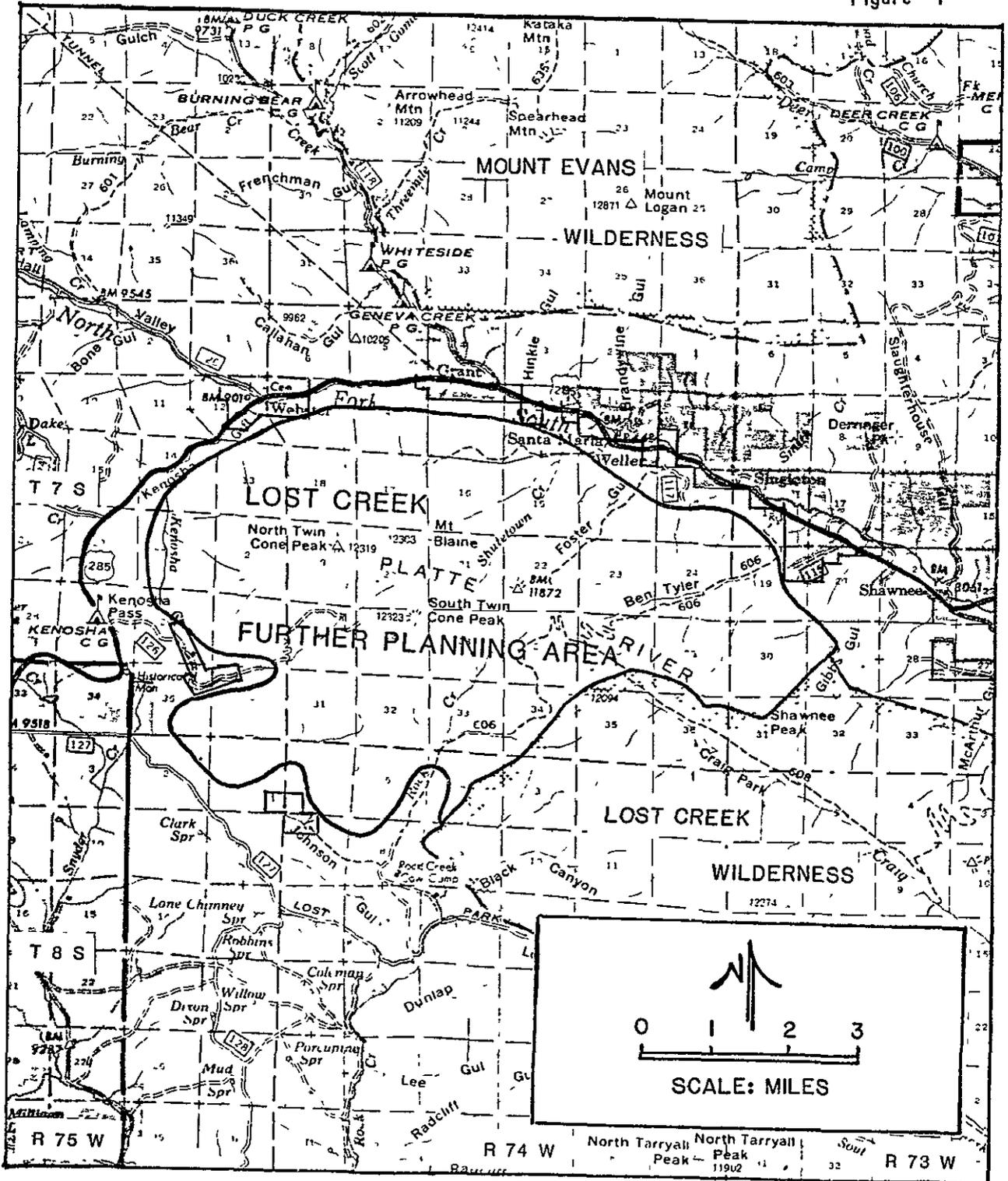
The proposed action is an administrative recommendation. The proposed action is documented in the Record of Decision, FEIS, for the Pike & San Isabel National Forests Land and Resource Management Plan.

VICINITY

The Lost Creek Further Planning area is located in Park County, Colorado about 50 miles southwest of Denver. It is at the north end of the Platte River mountains to the east of Kenosha Pass. The area covers about 20,723 acres and includes North and South Twin Cone Peaks and Mt. Blaine. Elevations range from about 8,500 feet to 12,300 feet. The area is generally accessible from U.S. Highway 285 along the north and west, and from Forest roads along the southwest. The east side adjoins the existing Lost Creek Wilderness. See vicinity map Figure 2.

LOST CREEK FURTHER PLANNING AREA PIKE NATIONAL FOREST

Figure 1



SCOPE OF ISSUES TO BE ADDRESSED

The scope of the issues to be addressed was identified as part of the process for developing the DEIS and Proposed Forest Plan. Analysis of the public comment on the DEIS and Proposed Plan further refined and added to the issues. Following are the issues and concerns related to *Lost Creek Further Planning Area*.

Issues and Management Concerns

Public issues identified during the land management planning process include:

- Appropriate uses within wilderness and how they will be regulated and managed.
- Existing amounts of wilderness are adequate; reduce or expand the National Wilderness Preservation System.
- Once an area is designated wilderness, overuse will occur.
- Some local areas are economically depressed. The designation of Lost Creek FPA as wilderness will help to further depress the economy. Lost Creek FPA should be designated wilderness to improve the economy through increased tourism.
- Resources may be tied up in wilderness, excluding mining, proper grazing, or water development.
- Opposition to mineral development in Lost Creek FPA.

The following management concerns were also identified:

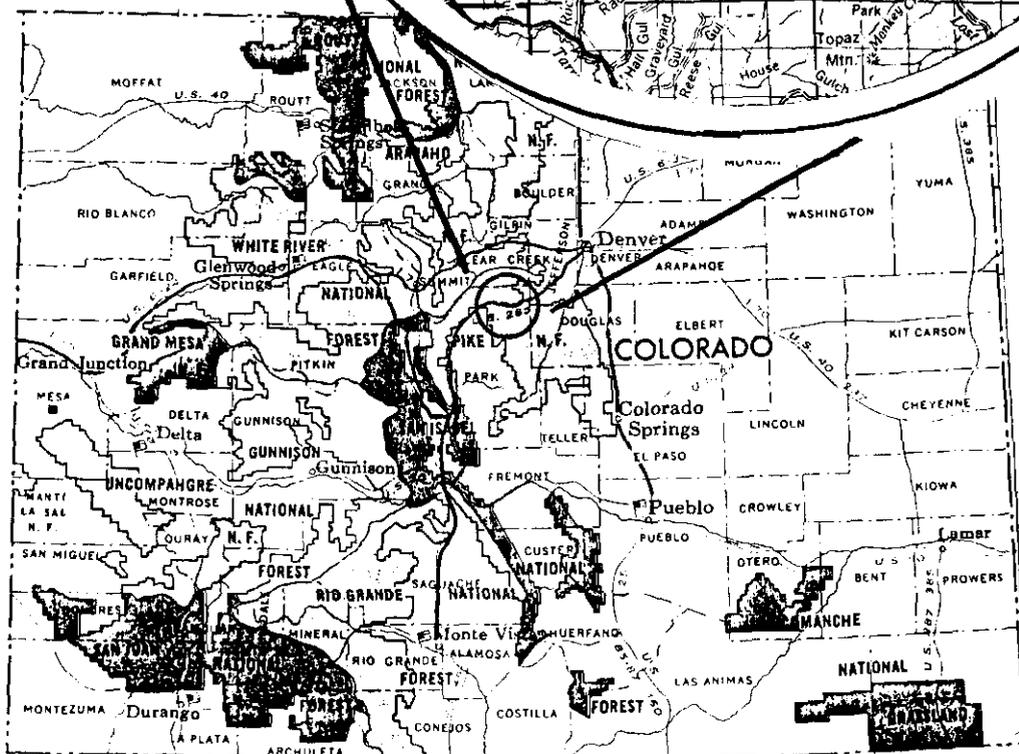
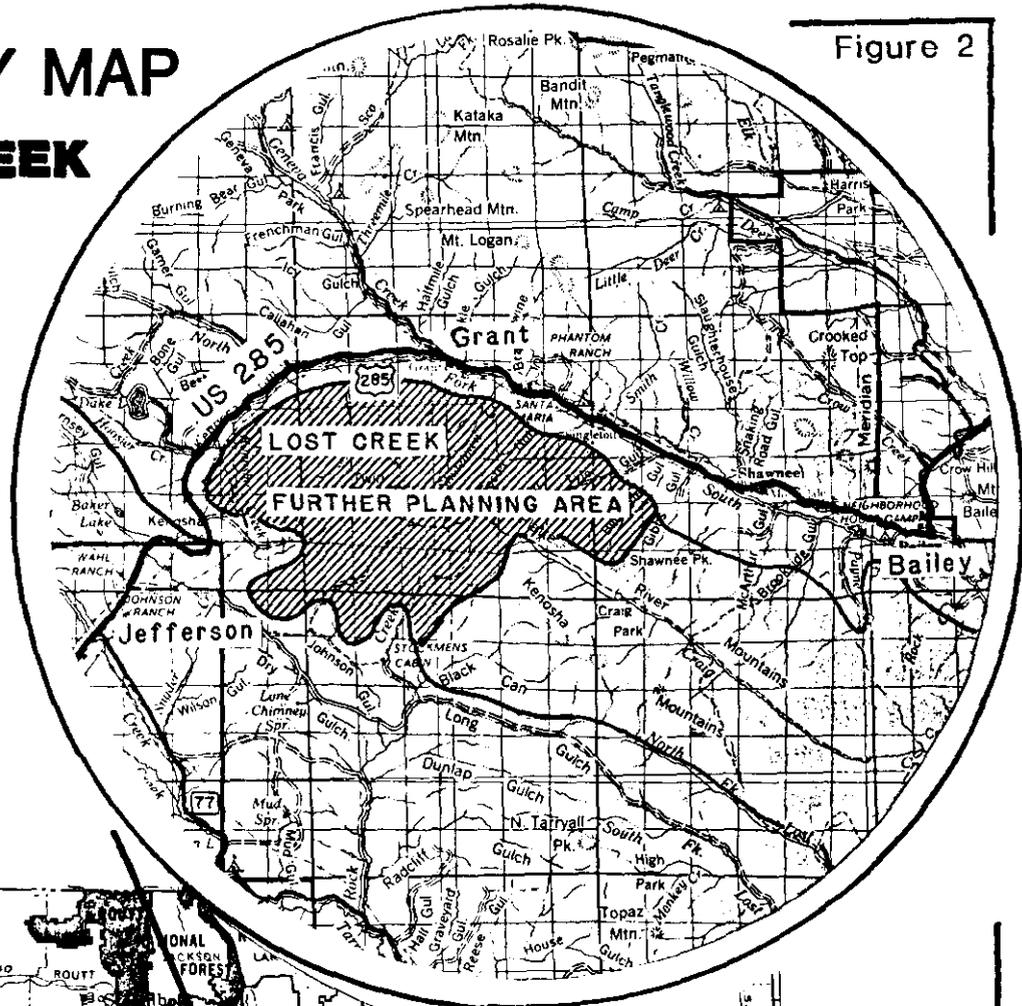
- The resource implications of alternate land uses particularly for activities involving vegetation treatment for insect and disease control, dispersed motorized recreation, wildlife habitat diversity improvement, and management of minerals activities.
- Need to minimize conflicts between wilderness management and non-conforming but permitted uses. This includes the modification of boundaries to eliminate conflicts and provide an identifiable manageable boundary.
- Enlarge the Lost Creek Wilderness to meet present and future demands for wilderness.
- Would the addition of all or portions of the Lost Creek FPA to Lost Creek Wilderness improve the wilderness attributes?

VICINITY MAP

LOST CREEK FURTHER PLANNING AREA

PIKE
NATIONAL
FOREST

Figure 2



State and Local Government Policies

- The Colorado State Comprehensive Outdoor Recreation Plan (SCORP) Region 4, which includes Park County, recognizes that intensive recreation use will continue to heavily impact the region's natural resources. The Plan recognizes that the Forest Service has placed high priority on providing hiking, developed camping, backcountry camping, fishing, and nature study and recommends the Forest Service place increased priority on picnicking and motorcycling.
- The Lost Creek Further Planning Area is within the Colorado State Division of Wildlife (DOW) Southeast Region. The DOW, Colorado Comprehensive Management Plan, December 1977, provides the State policies and objectives for big game management along with priorities for the DOW Regions. Needs for additional and improved habitat for big game species are recognized and are placed relatively high in priority. A need for population increases in the major wildlife species are indicated.

The Colorado Statewide Comprehensive Wildlife Management Plan for National Forest System Lands in Colorado (1980-1984) prepared in cooperation with the DOW, identifies opportunities for habitat improvement. The Lost Creek Further Planning Area includes habitat for deer, elk, and Bighorn sheep which can contribute to the DOW's Southeast Region goals and objectives.

- The major goals of the Park County General Land Use Plan of 1974 include:

To reduce the economic dependence of the county on other areas and to increase economic well-being and opportunities of local residents.

To further economic and social development by improving access to all parts of the County in accordance with the requirements of a high quality environment.

To develop sound land use policies that respect the constraints placed on development by the natural environment.

WILDERNESS SUITABILITY

The Wilderness Act of 1964 established standards to be met by areas in the National Wilderness Preservation System. Forest Service policy requires that an area's wilderness capability, availability, and need be established before determining whether the area is suitable or unsuitable for inclusion in the system. Chapter IV of this document contains an analysis of the WSA's ability to meet these criteria and to respond to public issues.

Criteria used in this analysis were established by the 1964 Wilderness Act and Forest Service Policy and are outlined below and discussed in detail in Chapter IV of this report.

Capability. The area must offer opportunities and experiences, or contain values, which are dependent upon or enhanced by a wilderness environment. The area must be manageable as wilderness.

Availability. National Forest System land determined to meet wilderness oriented capability requirements is generally available for consideration as wilderness. It is, however, conditioned by the value and need for the wilderness resource, compared to the value and need for other resources. To be considered available, wilderness designation must represent the highest and best use of the land over the long run.

Need. There must be clear evidence of current or future public need for additional designated wilderness.

CHAPTER II

ALTERNATIVES

OVERVIEW

The Lost Creek area was inventoried in RARE II as potential wilderness and allocated to "Further Planning." RARE II provided that roadless areas placed in the Further Planning category be considered for all uses, including wilderness, during the development of Forest Land and Resource Management Plans, or other specific project plans meeting NEPA requirements.

There were two alternatives considered in the DEIS: suitable and unsuitable for wilderness. In response to many comments, additional alternatives were developed and analyzed. Also, discussion has been added which ties the alternative management strategies for Lost Creek FPA directly to the Forest Plan alternative.

The Management Area Prescriptions assigned to the FPA in the different alternatives and the effects of those prescriptions are discussed in detail in Chapter IV of this report. Details of the Management Area Prescriptions are found in Chapter III of the Forest Plan.

ALTERNATIVES CONSIDERED IN DETAIL

Suitable for Wilderness - Alternative 1.

This is the same as Alternative C in the Forest Plan FEIS. This alternative would result in a recommendation that the entire Lost Creek Further Planning Area is suitable for inclusion in the National Wilderness Preservation System. The entire 20,723 acres would be managed under Management Area Prescription 8C.

In areas managed under Prescription 8C, emphasis is on protecting and perpetuating essentially natural biophysical conditions in designated wilderness. Solitude and a low level of encounters with other wilderness users and evidence of past human use is not an essential part of the social setting. Designated campsites are used and show evidence of repeated but acceptable levels of use.

Unsuitable for Wilderness (No Action) Alternative 2.

This alternative is the same as Alternative B in the Forest Plan FEIS. Under this alternative 10,054 acres would be managed under Management Area Prescription 2B; 3,140 acres under 4B; 6,043 acres under 3A; and 1,486 acres under 5B.

In areas managed under Prescription 2B, the emphasis is for rural and roaded-natural recreation opportunities such as driving for pleasure, viewing scenery, picnicking, fishing, snowmobiling, and cross-country skiing. Conventional use of highway-type vehicles is provided for in design and construction of facilities. Harvest methods are clearcutting

in aspen and lodgepole pine, shelterwood in interior ponderosa pine, mixed conifer and Englemann spruce-subalpine fir.

In areas managed under Prescription 3A, the emphasis is for semi-primitive nonmotorized recreation in roaded and unroaded areas. Opportunities such as hiking, horseback riding, hunting, and cross-country skiing are available. Seasonal or permanent restrictions may be applied to provide seclusion for wildlife.

In areas managed under Prescription 4B, the emphasis is on the habitat needs of one or more Management Indicator Species. Vegetation characteristics and human activities are managed to provide optimum habitat. Tree stands are managed for specific size, shape, interspersion, crown closure, age, structure, and edge. Rangeland vegetation is managed to provide needed species composition.

In areas managed under Prescription 5B, emphasis is on providing forage and cover on winter ranges for deer, elk, bighorn sheep, and mountain goats. Vegetation is treated to increase forage production or to create and maintain thermal and hiding cover for big game. New roads are located outside the area; existing local roads are closed or managed to prevent unacceptable stress on big game animals.

Unsuitable - Resource Development (Proposed Action) - Alternative 3.

This is the same as Alternative A in the Forest Plan FEIS. It is the Proposed Action.

Under this alternative all of Lost Creek FPA would be recommended as unsuitable for inclusion in the National Wilderness Preservation System and would be managed for other than wilderness uses. Approximately 7,386 acres would be managed under Management Area Prescription 4B; 9,986 acres under Prescription 3A; 1,486 under Prescription 5B; and 1,865 acres under Prescription 7A.

The management emphasis for Prescriptions 3A, 4B, and 5B are described above. In addition, in areas managed under Prescription 7A, emphasis is on wood fiber production and utilization. Harvest methods by forest cover type are clearcutting in aspen, lodgepole pine, and Englemann spruce-subalpine fir, and shelterwood in interior ponderosa pine and mixed conifers. Recreation opportunities range from the roaded natural type to semi-primitive nonmotorized depending on the travel management scheme for the area.

Partially Suitable with Boundary Adjustment - Alternative 4.

With a boundary adjustment, approximately 10,561 acres of Lost Creek FPA would be suitable for wilderness and would be managed under Management Area Prescription 8C. Approximately 10,162 acres would be unsuitable for wilderness and would be managed under Prescriptions 4B on 1,790 acres; 7A on 2,951 acres; 5B on 1,486 acres; and 2A on 3,935 acres.

Beginning at the FPA north boundary approximately two miles south and west of the town of Grant the proposed boundary would follow the ridge south and east to the peak of Mt. Blaine, south to South Twin Cone Peak and continue south on the ridge which is approximately 3/4 mile west of Rock Creek. Figure 3 displays these boundaries.

The management emphasis for Prescriptions 8C, 3A, 5B, 7A and 4B are discussed above. In addition, in areas managed under Prescription 2A, the emphasis is for semiprimitive motorized recreation opportunities such as snowmobiling, four-wheel driving, and motorcycling both on and off roads and trails. Travel may be restricted or seasonally prohibited to designated routes to protect physical and biological resources. Harvest methods are clearcutting in aspen and lodgepole pine, and shelterwood in all other forest cover types.

MANAGEMENT AREA PRESCRIPTIONS BY ALTERNATIVE

FOREST PLAN FEIS ALTERNATIVES

Table II-1 shows the acres allocated to each Management Area Prescription by Forest Plan FEIS alternative. Detailed descriptions of the Management Area Prescriptions are found in Chapter III, Management Direction, in the Forest Plan.

Table II-1.

MANAGEMENT AREA ALLOCATION BY ALTERNATIVE (Forest Plan FEIS)						
Mgt. Area	Description	Forest Plan FEIS Alternative				
		A	B	C	D	E
8C	Semiprimitive wilderness recreation opportunities	-0-	-0-	20,723	-0-	-0-
2A	Semiprivimitve motorized recreation on roads	-0-	-0-	-0-	3,935	-0-
2B	Roaded natural recreation emphasis	-0-	10,054	-0-	-0-	1,865
3A	Semiprimitive nonmotorized emphasis	9,986	6,043	-0-	6,043	14,232
4B	Wildlife habitat emphasis, vegetation management	7,386	3,140	-0-	3,140	3,140
5B	Wildlife Winter Range, vegetation management	1,486	1,486	-0-	1,486	1,486
6A	Improving rangeland conditions	-0-	-0-	-0-	4,254	-0-
7A	Wood fiber production and utilization	1,865	-0-	-0-	1,865	-0-

LOST CREEK FURTHER PLANNING AREA REPORT ALTERNATIVES

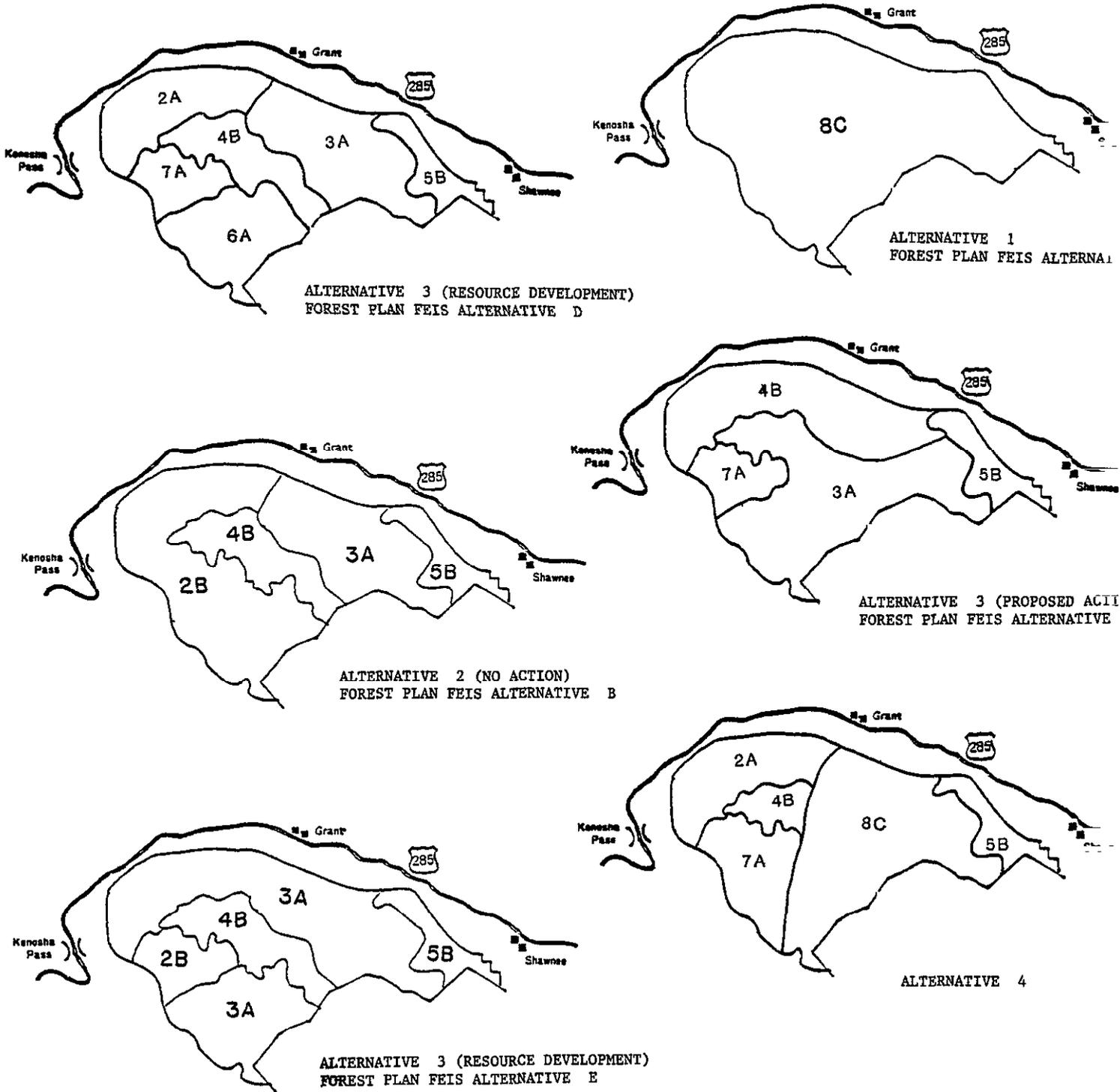
Table II-2 displays Management Area Prescription allocations for each Lost Creek FPA report alternative. Detailed descriptions of the Management Area Prescriptions are found in Chapter III, Forest Plan.

TABLE II-2

<u>Management Prescription</u>	<u>Lost Creek FPA Report Alternatives</u>			
	<u>No. 1 (C) Suitable for Wilderness</u>	<u>No. 2 (B) No Action (Unsuitable)</u>	<u>No. 3 (A) Resource Development (Unsuitable)</u>	<u>No. 4 Partially Suitable With Boundary Modification</u>
8C	20,723	-0-	-0-	10,561
2A	-0-	-0-	-0-	3,935
2B	-0-	10,054	-0-	-0-
3A	-0-	6,043	9,986	-0-
4B	-0-	3,140	7,386	1,790
5B	-0-	1,486	1,486	1,486
6A	-0-	-0-	-0-	-0-
7A	-0-	-0-	1,865	2,951

Figure 3 LOST CREEK FURTHER PLANNING AREA ALTERNATIVES (FOREST PLAN FEIS ALTERNATIVE MANAGEMENT AREA ALLOCATIONS)

(See Chapter III, Forest Plan, for descriptions of Management Area Prescriptions displayed here.)



Tables II-3 show the expected environmental and economic consequences under each alternative described in this report. In summary, the major changes are in recreation opportunity, timber available for harvest, wildlife habitat improvement, and impact on mineral exploration.

TABLE II-3

SUMMARY OF ENVIRONMENTAL CONSEQUENCES

<u>Resource</u>	<u>Alternative 1</u> Suitable	<u>Alternative 2</u> Unsuitable	<u>Alternative 3</u> Resource Development	<u>Alternative 4</u> Partially Suitable
<u>Wilderness</u>				
Area of wilderness	20,723 acres	-0-	-0-	10,561 acres
Potential loss of wilderness character of area	None	Loss would be very low comparatively in wilderness attributes	Loss would be very low comparatively in wilderness attributes	None
Natural Integrity	Favorable	Low	Moderate	Favorable
Apparent Naturalness	Favorable	Low	Moderate	Favorable
Primitive Recreation Opportunity	Favorable	Low	Moderate	Favorable
Scenic Values	Favorable	Low	Moderate	Favorable
Supplemental Attributes	Favorable	Low	Moderate	Favorable
<u>Recreation</u>				
Recreation opportunity	Semiprimitive 20,723 acres	Semiprimitive non-motorized 10,669 ac Roaded natural 10,054 ac	Semiprimitive non-motorized 18,868 ac Roaded natural 1855 ac.	Semiprimitive non-motorized 13,837 ac semiprimitive motorized 3935 ac Roaded natural 2951 acres
Dispersed	21,000 RVD's	33,800 RVD's	25,000 RVD's	30,400 RVD's
Developed	- RVD's	- RVD's	- RVD's	- RVD's
Recreation capacity	1036 PAOTS 62,000 visitor days/yr	5,560 PAOTS 127,500 visitor days/yr	1870 PAOTS 84,300 visitor days/yr	2365 PAOTS 91,300 visitor days/yr
Area open to ORV (off-road vehicles) use	-0-	20,723 ac open to snowmobiles but very little is operable. Trails closed to ORV's. FDR 126 open to ORV's - 3 miles.	20,723 ac open to snowmobiles but very little is operable. Trails closed to ORV's. FDR 126 open to ORV's - 3 miles.	20,723 ac open to snowmobiles but very little is operable. Trails closed to ORV's. FDR 126 open to ORV's - 3 miles.
Potential developed use	-0-	-0-	-0-	-0-
Fishing use	-0-	-0-	-0-	-0-
Hunting use	No change	No change	No change	No change

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TABLE II-3 continued

<u>Resource</u>	<u>Alternative 1</u> Suitable	<u>Alternative 2</u> Unsuitable	<u>Alternative 3</u> Resource Development	<u>Alternative 4</u> Partially Suitable
<u>Minerals</u>				
Cost of exploration	Decreased	Average for general locale	Average for general locale	Decreased
Likelihood of mineral development	Decreased (after 1983)	Average for general locale	Average for general locale	Decreased
Conflict with accessibility * and development of outstanding minerals (rights reserved)	Increased	None	None	Increased
Lands available for mineral leasing				
Geophysical investigations	17,256	20,723	20,723	10,561
Leasable	-0-	20,723	20,723	-0-
No leasing (Will be withdrawn)	20,723	-0-	-0-	10,561
* State owns the minerals on 3,840 acres of land in the area (Acres not subtracted from area total for planning purposes.)				
<u>Timber</u>				
Tentatively suitable Forest land	-0-	16,425 acres	16,425	8,366
slopes less than 45%	-0-	11,657 acres	11,657	3,598
slopes greater than 45%	-0-	4,768 acres		
Growing stock volume	66.83 MMBF	66.83 MMBF	66.83 MMBF	66.83 MMBF
Current allowable sale quantity (slopes less than 45%)	-0-	1.4 MMBF	1.4 MMBF	.4 MMBF
Long-term sustained yield (all productive Forest land)	-0-	2.4 MMBF	2.4 MMBF	.7 MMBF
(slopes less than 45%)	-0-	1.8 MMBF	1.8 MMBF	6 MMBF

TABLE II-3 continued

<u>Resource</u>	<u>Alternative 1</u> Suitable	<u>Alternative 2</u> Unsuitable	<u>Alternative 3</u> Resource Development	<u>Alternative 4</u> Partially Suitable
<u>Water</u>				
Potential to improve water yield increase	-0-	800 ac-ft.		
Effects on existing uses	None	None		
<u>Wildlife</u>				
Potential to improve winter range	-0-	970 acres deer winter range	970 acres	970 acres
Potential to improve habitat diversity	-0-	11,600 acres	11,600 acres	5,900 acres
Landownership	None	None		
Private inholdings acquisition	None	None		

SUMMARY OF WILDERNESS SUITABILITY EVALUATIONS

Chapter IV describes in detail the wilderness suitability evaluation for the Lost Creek Further Planning Area. A conclusion of suitable requires that the area is determined to be 1) capable, 2) available, and 3) needed for wilderness.

CHAPTER III

AFFECTED ENVIRONMENT

The suitability or unsuitability of the Lost Creek FPA for wilderness designation is a function of the physical, social and economic environments within and surrounding the FPA. This chapter describes the various environmental factors related to this suitability analysis. Chapter IV describes the anticipated effects on the environment resulting from implementation of the alternatives.

Wilderness

A Wilderness Attribute Rating System (WARS) was developed for RARE II to provide an indication of an area's potential for wilderness. The rating considered characteristics from the 1964 Wilderness Act including natural integrity, apparent naturalness, outstanding opportunities for solitude, and the opportunity for primitive and unconfined types of recreation. Additionally, supplemental attributes including ecological, geological, or other features of scientific, educational, scenic, or historical value were considered. The wilderness attributes were rated on a scale of 1 to 7; the supplemental attributes were rated on a scale of 1 to 5. The rating of 14 (plus 4 for supplemental attributes) was reviewed for the Forest Plan effort.

Natural Integrity. Lost Creek FPA is not natural in appearance over much of the area. There are approximately 19 miles of old logging roads. Cut over areas include over 600 acres of recent logging (prior to 1977). There is a radio repeater site, and about 60 acres of tree plantations. There is also evidence of past mining activity. The RARE II rating for Lost Creek FPA of 3 was reaffirmed.

Apparent Naturalness. As noted above the area is not natural in appearance. There is substantial evidence of past human activity. It would probably not be possible to completely restore the area to a natural condition. The RARE II rating of 3 was reaffirmed.

Opportunity for Solitude. Approximately the north half of the area boundary is adjacent to Highway 285. The highway traffic sounds can be heard over a significant portion of the area. Because of the smaller size of the FPA the traffic sounds are more apparent to visitors, therefore, the RARE II rating of 4 was reduced to 3.

Opportunity for Primitive and Unconfined Recreation. Recreation opportunities are not outstanding in the area when compared to surrounding areas. There are two peaks approximately 12,000 feet high. The terrain is not rugged and there is little opportunity for challenge. The RARE II rating of 4 was reaffirmed.

Supplemental Attributes. The area has no unique landforms, or areas of geologic interest that are not found in nearby wildernesses. There are no threatened or endangered plant or animal species present in the FPA. The RARE II rating of 2 was reaffirmed.

Scenic Value. Lost Creek FPA does not contain areas of outstanding scenic value. There are no significant bodies of water or stream courses which are uncommon to the surrounding area. The RARE II rating of 2 was reaffirmed.

Within 50 miles of the Lost Creek Further Planning Area there are eight wildernesses. They are:

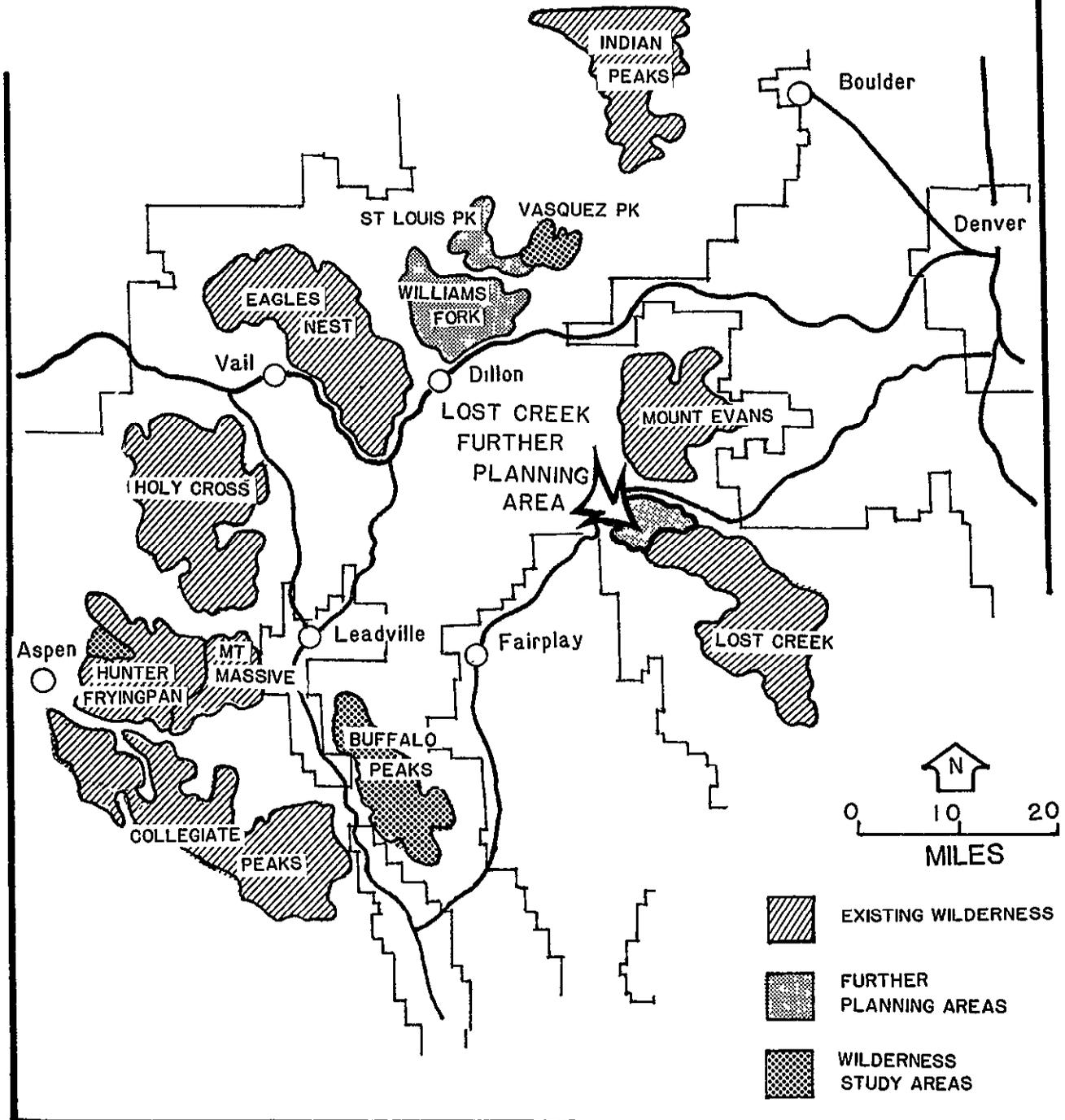
<u>Wilderness</u>	<u>Acres</u>
Collegiate Peaks	159,900
Eagles Nest	133,915
Holy Cross	126,000
Hunter-Fryingpan	74,450
Indian Peaks	71,400
Lost Creek	106,000
Mount Evans	73,000
Mount Massive	26,000
Total	<u>770,665</u>

Together, these areas offer a wide variety of recreation opportunity, terrain, vegetation types, and scenic quality. (Figure 5)

LOST CREEK FURTHER PLANNING AREA

Figure 5

PROXIMITY TO OTHER WILDERNESS
AND STUDY AREAS



Physiography

The Lost Creek Further Planning Area lies at the north end of the Platte River Mountains to the east of Kenosha Pass. The area is dominated by north and south Twin Cone Mountains and Mt. Blaine, with steep slopes dropping off to the north, west and south boundaries of the area. Elevations range from about 8,500 feet at the lower slopes up to 12,323 feet at south Twin Cones.

Geology and Soils

Soils in the Lost Creek Further Planning Area are generally moderate in inherent fertility. They are moderate in erosion hazard with a moderate to low mass movement potential. Soil loss tolerance is 2 to 3 tons per acre per year. Mitigation measures for planned resource activities will keep soil loss within acceptable levels.

Minerals

There is no recorded history of mining activity in the Lost Creek Further Planning Area. Results of recent exploratory work by private mining interests have not been disclosed. The State owns the mineral rights to 3,840 acres of the area. (Figure 6) As of 7-20-84 there are two oil and gas lease applications pending, a total of 1,286 acres, for the Lost Creek Further Planning Area. See Figure 7.

According to a mineral resource potential evaluation conducted by the United States Geological Survey and Bureau of Mines, the area contains a low resource potential for both leasable and locatable mineral resources. (USGS Report.)

Table III-A and the Mineral Potential Map, Figure 6, shows mineral information obtained from existing records and preliminary United States Bureau of mines information.

TABLE III-A
MINERAL POTENTIAL

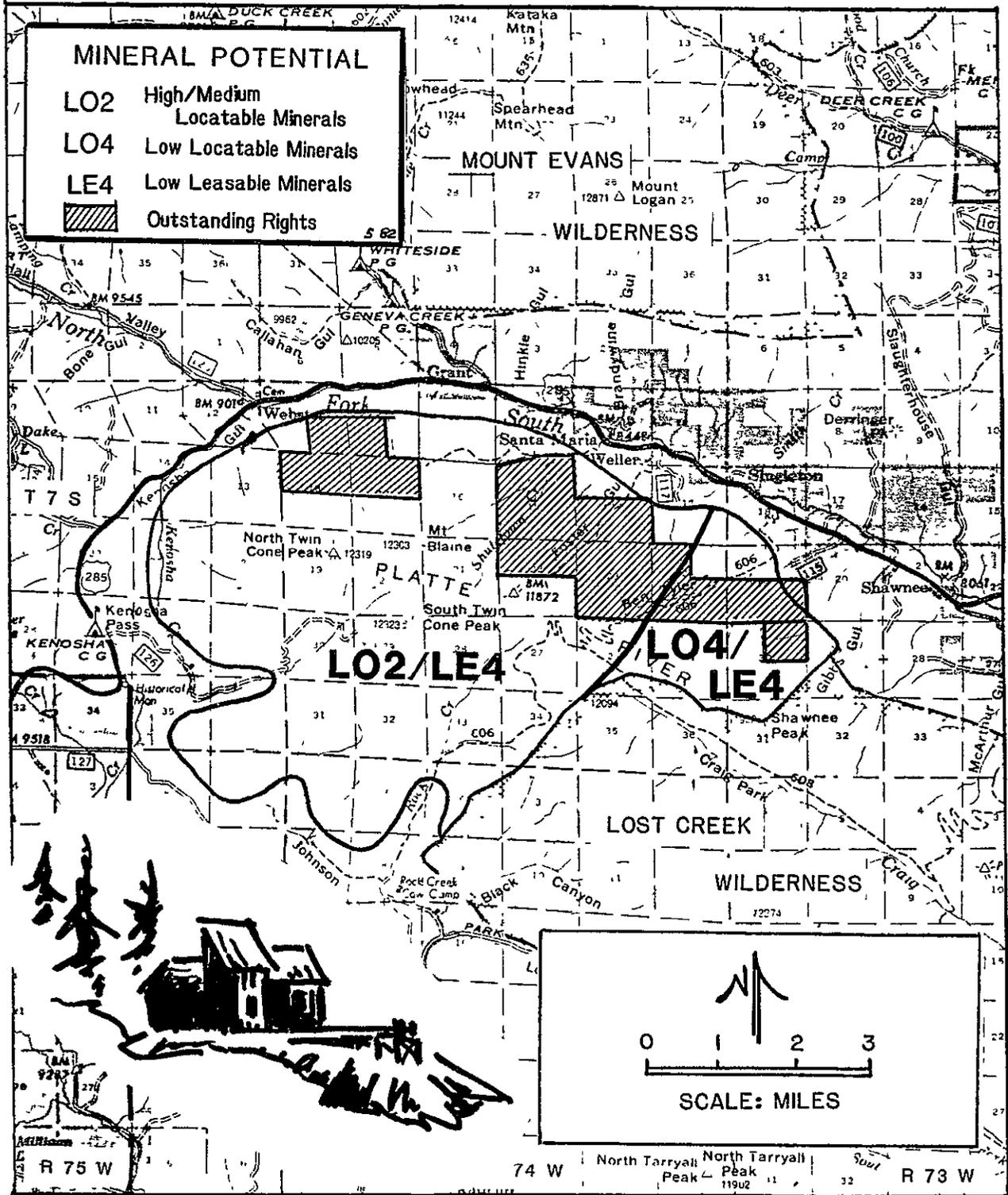
	<u>Acres</u> <u>(Thousands)</u>
Known reserves or producing sites.	23.0
Moderate to high potential for locatable minerals.	21.4
High or moderate potential for leasable minerals.	0
Low potential for locatable minerals.	1.6
Low potential for leasable minerals.	23.0
Outstanding rights.	3.8

RARE II ratings were 60 for hardrock mineral potential, 0 for oil and gas, 85 for uranium, and 0 for coal, geothermal and low value minerals based on a rating scale of 0 to 100.

LOST CREEK FURTHER PLANNING AREA

PIKE NATIONAL FOREST

Figure 6



MINERAL LEASING
LOST CREEK
FURTHER PLANNING AREA
 PIKE NATIONAL FOREST

Figure 7

