



United States
Department of
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Forest Service

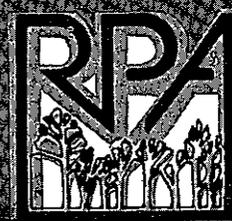
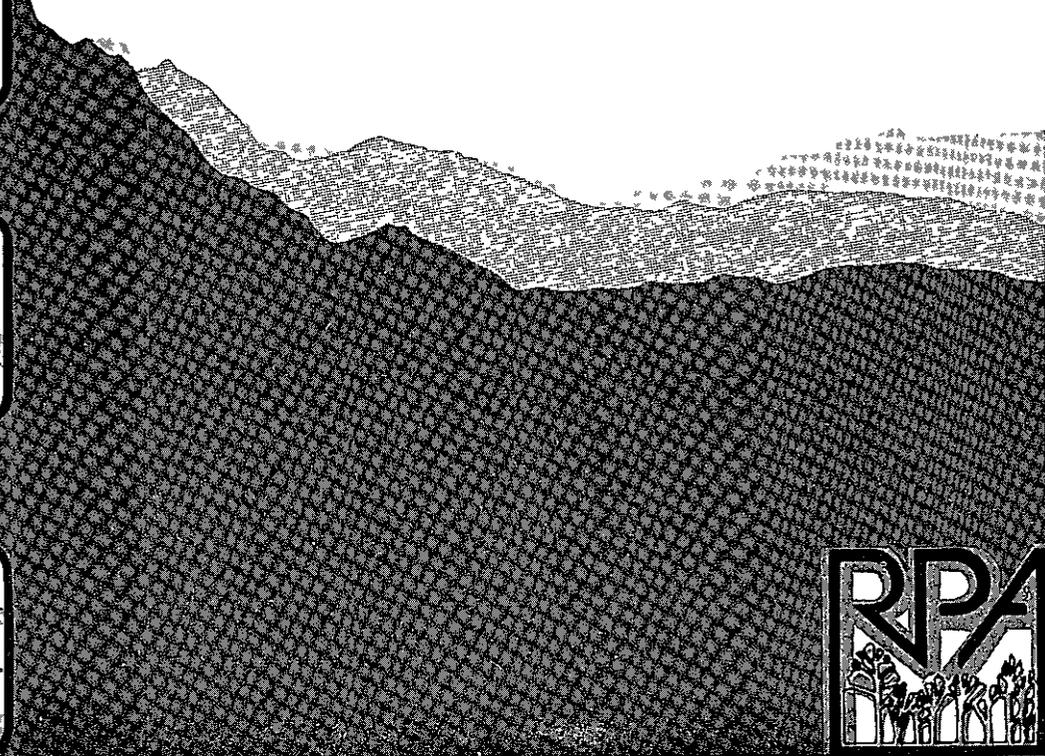
Pueblo, Colorado



FINAL ENVIRONMENTAL IMPACT STATEMENT

Pike and San Isabel
National Forests;
Comanche and
Cimarron National
Grasslands

Volume II
Appendices A-K



APPENDIX A

APPENDIX A

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APPENDIX B

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GLOSSARY

Acre-Foot A water measurement term equal to the amount of water that would cover an area of one acre to a depth of one foot (43,560 cubic feet).

Activity A measure, course of action, or treatment that is undertaken to directly or indirectly produce, enhance, or maintain forest and rangeland outputs or achieve administrative or environmental quality objectives. FSH 1309.11, The Management Information Handbook sets forth Forest Service activity definitions, codes, and units of measure.

Activity Type The further description of the measure, course of action, or treatment within an activity. See FSH 1309.11 for definitions of activity types

Adopted Visual Quality Objective. The level to be achieved as a result of management direction identified in the approved or selected Forest Plan.

Aeolian A term applied to soil deposits arranged or transported by the wind

Allowable Sale Quantity (ASQ) The quantity of timber that may be sold from the area of suitable land covered by the Forest Plan for a time period specified by the Plan. This quantity is usually expressed on an annual basis as the "average annual allowable sale quantity " (36 CFR 219.3)

Alluvium. A general term for deposits resulting from the operations of rivers, including sediments laid down in river beds, flood plains, lakes and at the foot of mountain slopes.

Alternative One of several policies, plans, or projects proposed for decision making

Alternative Visual Quality Objective (Alternative VQO)(AVQO). The level to be achieved in association with a stated management alternative.

Amenity A term describing values and characteristics relating to a personal or social phenomenon and the psychological well-being of persons affected by National Forest management. These values and characteristics are above and beyond those required to satisfy the basic biological needs for food, water and shelter.

Allotment Management Plan (AMP) The plan of long-term use and development of a range allotment

Analysis Area. A delineated area of land subject to analysis of (1) responses to proposed management practices in the production, enhancement, or maintenance of forest and rangeland outputs and environmental quality objectives, and (2) economic and social impacts.

Animal Unit Month (AUM). The quantity of forage required by one mature cow (1,000 lbs.) or the equivalent, for one month.

Annual Programmed Sale Quantity The portion of the Allowable Sale Quantity that is programmed for a specific year. It is based on current demand for wood products, funding, silvicultural needs and practices, and multiple-use objectives. (FSM 2416.53, ID#68)

Arterial Roads Roads which provide service to large land areas and usually connect with public highways or other Forest arterial roads to form an integrated network of primary travel routes.

Available Lands Those portions of the Forest not administratively or legislatively excluded from use for timber harvest or livestock grazing. See also Timber Suitability Classification

Background. The distant part of a landscape located from 3-5 miles to infinity from the viewer

Basal Area. The cross-sectional area of a stand of trees measured at breast height. The area is expressed in square feet per acre.

Base Sale Schedule A timber sale schedule formulated on the basis that the quantity of timber planned for sale and harvest for any future decade is equal to or greater than the planned sale and harvest for the preceding decade, and this planned sale and harvest for any decade is not greater than the long-term sustained-yield capacity. (36 CFR 219.3)

Benchmark Levels. Levels provided for comparison purposes only. Benchmark levels remain constant and can be used to measure differences between alternatives

Big Game Winter Range The area available to and used by big game (large mammals normally managed for sport hunting) through the winter season

Biological Growth-Potential The average net growth attainable in a fully stocked natural forest stand (36 CFR 219.3)

Board Foot (BF) The amount of wood contained in an unfinished board 1 inch thick, 12 inches long, and 12 inches wide

Browse That part of the current leaf and twig growth of shrubs, woody vines and trees available for animal consumption

Canopy The cover of branches and foliage formed collectively by the crown of adjacent trees and other woody growth

Capable Lands Those portions of the Forest that have an inherent ability to support a resource For example, lands that are capable of producing harvestable timber must produce at least 20 cubic feet per acre per year of wood fiber See also - Productive Forest Land in Timber Suitability Classification

Capability The potential of an area of land to produce resources, supply goods and services, and allow resource uses under an assumed set of management practices and at a given level of management intensity Capability depends upon current conditions and site conditions such as climate, slope, landform, soils and geology, as well as the application of management practices, such as silviculture or protection from fire, insects or disease (36 CFR 219.3(3) NFMA Regulations)

Capability Area Geographic delineations used to describe characteristics of the land and resources in integrated forest planning Capability areas may be synonymous with ecological land units, ecosystems or land response units

Capital Investment An input that increases the stock of natural or manmade resources (assets) needed to maintain or increase the flow of outputs in the future Benefits resulting from capital investments are normally recouped in excess of 1 year

Carrying Capacity, In Range Management The maximum stocking rate possible without inducing damage to vegetation or related resources In Wildlife Management it relates to the maximum number of individual animals that can survive the greatest period of stress each year on a given land area In Recreation it is the maximum human use an area can sustain on a long-term basis without unacceptable physical (ecological) deterioration or psychological crowding

CEQ Council on Environmental Quality

CFR Code of Federal Regulations

Class I Property (Cultural Resource) Archeological or historical sites or properties which have been evaluated and determined to be eligible for inclusion or have been included in the National Register of Historic Places.

Class II Property (Cultural Resource) Archeological or historical sites or properties which have been identified but have not been evaluated to determine the significance and eligibility for inclusion in the National Register of Historic Places

Class III Property (Cultural Resource) Sites or properties evaluated and determined to be ineligible for inclusion in the National Register of Historic Places.

Clearcutting The harvesting in one cut of all trees in an area for the purpose of creating a new, even-aged stand The area harvested may be a patch, stand, or strip large enough to be mapped or recorded as a separate age class

Collector Roads These roads serve smaller land areas than do the arterial roads and are usually connected to a Forest arterial or public highway They collect traffic from Forest local roads or terminal facilities

Colluvial Soil material that has moved downhill and has accumulated on lower slopes and/or at the bottom of the hill

Colorado Front Range Area That portion of Colorado that lies east of and adjacent to the Rocky Mountain range.

Commercial Forest Land (CFL) See "Available Forest Land" in Timber Suitability Classification

Commercial Species Tree species suitable for industrial wood products

Commercial Thinning Cutting in immature stands to improve the quality and growth of the remaining stand
Trees removed in the thinning are used for sawtimber or products (poles, posts, props, fuelwood, etc)

Commercial Timber Sales The selling of timber from National Forest lands for the accomplishment of prescribed silvicultural objectives

Complex Planning Action A planning action in which individual components of the alternatives require separate decisions (see FSM 1970 62)

Congressionally Classified and Designated Areas Areas which require Congressional enactment for their establishment, such as Wilderness, National Wild and Scenic Rivers, National Recreation Areas, or National Scenic Trails

Congressionally Designated Wilderness Study Area In this plan, an area included in Section 105(a) of Public Law 96-560 for which the Secretary of Agriculture shall review and report his recommendations on the suitability or unsuitability of the lands for inclusion in the National Wilderness Preservation System

Constrained To keep within some measurable bounds

Constrained Economic-Maximum Present Net Value Benchmark level used to compare the present net value of each alternative

Corridor A linear strip of land indentified for the present or future location of transportation or utility rights-of-way within its boundaries (36 CFR 219 3)

Cost Effective The least cost method of achieving a specified output or objective (Source Rocky Mountain Region Input-Output Model, USDA - FS, December 1980)

Cost Efficiency The usefulness of specified inputs (costs) to produce specified outputs (benefits) In measuring cost efficiency, some outputs including environmental, economic, or social impacts, are not assigned monetary values but are achieved at specified levels in the least cost manner Cost efficiency is usually measured using present net value, although use of benefit-cost ratios and rates-of-return may be appropriate (36 CFR 219 3)

Council on Environmental Quality (CEQ) An advisory council to the President established by the National Environmental Policy Act of 1969 It reviews federal programs for their effect on the environment, conducts environmental studies, and advises the President on environmental matters

Cover, Hiding Vegetation capable of hiding 90 percent of a standing adult deer or elk from the view of a human at a distance equal to or less than 200 feet

Cover, Thermal Cover used by animals for protection against effects of weather

Critical Viewshed Critical viewsheds are areas viewed by sensitivity level 1 travel routes, use areas, and/or water bodies to a middleground distance (4 miles) which meet the following criteria:

- 1 Areas have substantial prior investment for recreation
- 2 Public issues and management concerns have placed a high priority on esthetics and recreation
- 3 The composition of the viewed landscape is highly diverse and contains 90% of Variety Class A and B within boundary.

Critical viewsheds will be used when determining analysis areas

Cultural Resources The places, sites, and objects associated with events, activities, or persons important to the history or prehistory of an area Also included are native American religious or sacred sites or concepts associated with an area

Cutting Cycle The planned, recurring lapse of time between successive cutting in a timber stand

Cutting Methods. The tree stand manipulation practices employed to obtain a regenerated stand or improve the growth and form of immature stands. Regeneration cutting methods in the even-aged silvicultural system include clearcutting, shelterwood cutting and seed-tree cutting. Cutting methods in the uneven-aged silvicultural system include single-tree selection and group selection. Intermediate cuttings include precommercial thinning, commercial thinning, cleaning, weeding and release.

Decision Variable. A component of an alternative in which activities and their costs, outputs, and benefits are identified and used for analysis and decisionmaking. All activities and costs necessary to accomplish the outputs and benefits are included. See FSH 1309.11 for decision variable definitions and codes.

Demand. The amount of an output that users are willing to take at a specified price, time period, and condition of sale.

Demand Analysis. A study of the factors affecting the schedule of demand for an output, including the price-quantity relationship if applicable.

DBH (diameter at breast height). The diameter of a standing tree at a point 4 feet, 6 inches from ground level.

Deferred Forest Land. See Timber Suitability Classification.

DEIS. Draft Environment Impact Statement.

Demand. The quantity of goods or services called for, given a price or other combination of factors.

Desired Character. A statement of the landscape character to be created and/or maintained over time. It is based on the biological potential including potential variety class, and the desired sequence of spaces, vistas, and other visual elements. In the Forest Plan, only those parts of the desired character that will effect other resource outputs will be used. (Example: large tree character) (See USDA Handbook 559).

Developed Recreation. That type of recreation which occurs at man-made developments, such as campgrounds, picnic grounds, resorts, ski areas, trailheads, etc.

Developed Site. A tract of land modified with facilities such as parking lots, tables, sanitary systems, etc., to accommodate intensive type recreation activities by providing comforts and conveniences as well as safety and sanitation for the users.

Dispersed Recreation. That type of outdoor recreation which tends to be spread out over the land such as hunting, fishing, snowmobiling, hiking, driving for pleasure, cross-country skiing, motorbiking, and mountain climbing.

Distance Zone. One of three categories used in the Visual Management System to divide a view into near and far components. The three categories are (1) foreground, (2) middleground, and (3) background.

Diversity. The distribution and abundance of different plant and animal communities and species within the area covered by a land and resource management plan. (36 CFR 219 3(g) NFMA Regulations)

DOT. Department of Transportation.

Draft Environmental Impact Statement (DEIS). The statement of environmental effects required for major Federal actions under Section 102 of the National Environmental Policy Act and released to the public and other agencies for comment and review.

Economic Efficiency Analysis. A comparison of the values of resource inputs (costs) required for a possible course of action, with the values of resource outputs (benefits) resulting from such action. In this analysis incremental market and nonmarket benefits are compared with investment and physical resource inputs. (36 CFR 219 3(h) NFMA Regulations)

Economics. The science that deals with the production, distribution, and consumption of commodities.

Edge Contrast. A qualitative measure of the contrast of an edge, relative to the difference in structure of the vegetation of two adjacent areas. For example, "low", "medium", or "high" edge contrast.

Effect (Impact), Physical, Biological. The change, positive or negative, in the physical or biological conditions which directly or indirectly results from an activity, project, or program.

Effect (Impact), Economic The change, positive or negative, in economic conditions, including the distribution and stability of employment and income in affected local, regional, and national economies, which directly or indirectly result from an activity, project, or program

Effect (Impact), Social The change, positive or negative, in social and cultural conditions which directly or indirectly result from an activity, project, or program.

Endangered Species. Any species which is in danger of extinction throughout all or a significant portion of its range--other than members of the class Insecta which have been determined by the Secretary to constitute a pest whose protection under the provisions of this Act (Endangered Species Act of 1973) would present an overwhelming and overriding risk to man. It must be designated in the Federal Register by the appropriate Secretary

Endemic In entomology, the population of insects that are at their normal, balanced level, in contrast to epidemic (Rocky Mountain Biological Laboratory definition is, the species described from specimens collected in the area mentioned and found only in that area. They may be locally abundant and are not necessarily rare within their restricted area, however, they are found nowhere else)

Environmental Analysis. An analysis of alternative actions and their predictable short and long-term environmental effects, which include physical, biological, economic, social, and environmental design factors and their interaction (36 CFR 219.3(i) NFMA Regulations)

Environmental Assessment. The concise public document required by the regulations for implementing the procedural requirements of NFMA 40 CFR 1508.9 (36 CFR 219.3(i) NFMA Regulations)

Environmental Impact Statement(EIS). A document prepared by a Federal agency in which anticipated environmental effects of a planned course of action or development are evaluated. A federal statute (Section 102 of the National Environmental Policy Act of 1969) requires that such statements be prepared. It is prepared first in draft or review form, and then in a final form. An impact statement includes the following points: (1) the environmental impact of the proposed action, (2) any adverse impacts which cannot be avoided by the action, (3) the alternative courses of action, (4) the relationships between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity, and (5) a description of the irreversible and irretrievable commitment of resources which would occur if the action were accomplished

E. O. Executive Order Direction from the Executive Office of the President to one or more federal agencies

Epidemic In entomology, a population of insects that build up, often rapidly, to highly abnormal and generally injurious levels.

Evaluation Criteria Standards developed for appraising alternatives

Evapotranspiration The loss of water from land surfaces to the atmosphere by evaporation and by transpiration from plants.

Even-aged Management The application of a combination of actions that results in the creation of stands in which trees of essentially the same age grow together. Managed even-aged forests are characterized by a distribution of stands of varying ages (and, therefore, tree sizes throughout the forest area). The difference in age between trees forming the main canopy level of a stand usually does not exceed 20 percent of the age of the stand at harvest rotation age. Regeneration in a particular stand is obtained during a short period at or near the time that a stand has reached the desired age or size for regeneration and is harvested. Clearcut, shelterwood, or seed tree cutting methods produce even-aged stands (36 CFR 219.3)

Existing Visual Condition (EVC) The estimated condition presently occurring on-the-ground.

Firewood See Fuelwood

Forage. All browse and herbaceous food available to livestock and wild animals. It may be grazed in place or harvested for feeding

Foreground Generally the area that lies within one-third mile of the viewer with details such as individual boughs being readily visible

Forest and Rangeland Renewable Resources Planning Act of 1974(RPA) An Act of Congress requiring the preparation of a program for the management of the National Forests' renewable resources, and of land and resource management plans for units of the National Forest System. It also requires a continuing inventory of all National Forest System lands and renewable resources.

Forest Land. Land at least 10 percent occupied by forest trees of any size or formerly having had such tree cover and not currently developed for nonforest use. Lands developed for nonforest use include areas for crops, improved pasture, residential, or administrative areas, improved roads of any width, and adjoining road clearing and powerline clearing of any width (36 CFR 219.3)

Forest Program A forest program is the summary or aggregation of project or activity information that makes up an integrated (multifunctional) course of action for a given level of funding on a National Forest that is consistent with the Forest Plan

Forest System Roads or Trails' Roads or trails that are part of the Forest development transportation system, which includes all existing and planned roads and trails as well as other special and terminal facilities designated as Forest development transportation facilities.

FORPLAN A linear program used in the allocation and scheduling of resource management practices to the National Forest System landbase

Frissell Condition Class Classification used to describe the condition of a recreation site. Classes range from 1 to 5 with Class 1 showing only slight signs of damage and Class 5, an extremely damaged area

FSM Forest Service Manual, a collection of implementing instructions used internally within the Forest Service

Fuelwood Wood - round, split or sawed, and otherwise, general refuse material, cut into short lengths for burning

Further Planning Area Roadless Area of National Forest land designated for further study and evaluation in the second Roadless Area Review and Evaluation (RARE II) 1979

FY Fiscal Year for accounting purposes. USDA Forest Service Fiscal Year is October 1 - September 30

Goal. A concise statement that describes a desired condition to be achieved sometime in the future. It is normally expressed in broad, general terms and is timeless in that it has no specific date by which it is to be completed. Goal statements form the principal basis from which objectives are developed (36 CFR 219.3)

Goods and Services The various outputs, including on-site uses, produced from forest and rangeland resources (36 CFR 219.3)

Group Selection A modification of the selection system in which trees are removed periodically in small groups, resulting in openings that do not exceed one acre in size. This leads to the formation of a mosaic of age-class groups in the same forest.

Growing Stock Level. Growing stock levels are used to specify the stand density to be retained after a partial cut. Growing stock levels are designated by the square feet of basal area per acre desired when average stand diameter (DBH) is ten inches or more. Basal area retained in a stand of smaller average diameter (DBH) is less than the designated level.

Habitat Capability The estimated ability of an area, given existing or predicted habitat conditions, to support a wildlife, fish or plant population. It is measured in terms of potential population numbers.

Habitat Effectiveness The degree to which a physical wildlife habitat (food, water, shelter) is free from disturbances, and therefore attractive for wildlife occupancy.

Horizontal Diversity The vegetative diversity resulting from several stands of different plant communities or successional stages or both.

IMPLAN. A mathematical model designed to trace the flow of goods and services within an economy.

Inoperable or Not Operable Forest lands suitable for timber production but not available for harvest due to steepness of slope or other physical limitations.

Integrated Pest Management A process for selecting strategies to regulate forest pests in which all aspects of a pest-host system are studied and weighed. The information considered in selecting appropriate strategies includes the impact of the unregulated pest population on various resources values, alternative regulatory tactics and strategies, and benefit/cost estimates for these alternative strategies. Regulatory strategies are based on sound silvicultural practices and ecology of the pest-host system and consist of a combination of tactics such as timber stand improvement plus selective use of pesticides. A basic principle in the choice of strategy is that it be ecologically compatible or acceptable (36 CFR 219.3)

Integrated Resource Management A management strategy which emphasizes no resource element to the exclusion or violation of the minimum legal standards of others.

Intensive Grazing Management designed to increase the carrying capacity through structural and nonstructural practices. Complex livestock management systems are employed. Management seeks to maximize livestock forage production.

Inventory Visual Quality Objective (Inventory VQO)(IVQ) The proposed visual quality level derived from application of the visual management system to current and anticipated (within 10 years) sensitivity level and variety class inventories.

Irretrievable Applies to losses of production, harvest, or use of renewable natural resources. For example, some or all of the timber production from an area is irretrievably lost while an area is used as a winter sports site. If the use is changed, timber production can be resumed. The production lost is irretrievable, but the action is not irreversible.

Irreversible Applies primarily to the use of nonrenewable resources, such as minerals or cultural resources, or to those factors which are renewable only over long time spans, such as soil productivity. Irreversible also includes loss of future options.

Land Exchange The conveyance of non-Federal land or interests to the United States in exchange for National Forest System land or interests in land.

Land Line For Forest Plan purposes, National Forest property boundaries.

Linear Programming A mathematical method used to determine the most effective allocation of limited resources between competing demands when both the objective (e.g., profit or cost) and the restrictions on its attainment are expressible as a system of linear equalities or inequalities (e.g., $Y = a+bx$).

Local Dependent Industries Industries relying on National Forest outputs for economic activity.

Local Intermittent Roads. Local roads which are used only periodically with more than one year elapsing between uses. Intermittent use is in contrast to constant use of continuous or annually recurrent service and short-term use for limited resource activity and road is obliterated after its purpose is completed.

Local Roads Roads connecting terminal facilities with Forest collector or Forest arterial roads or public highways. These roads normally serve a specific resource or activity.

Long-Term Sustained Yield Capacity The highest uniform wood yield from lands being managed for timber production that may be sustained under a specified management intensity consistent with multiple use objectives.

M Roman numeral representing one thousand, example MBF, MRVD, MAUM.

Management Area An area with similar management objectives and a common management prescription.

Management Concern An issue, problem, or a condition which constrains the range of management practices identified by the Forest Service in the planning process. (36 CFR 219.3)

Management Direction. A statement of multiple use and other goals and objectives, the associated management prescriptions, and standards and guidelines for attaining them. (36 CFR 219.3)

Management Intensity. The management practices or combination of management practices and associated costs designed to obtain different levels of goods and services. (36 CFR 219.3)

Management Indicator Species Those species selected in the planning process to monitor the effects of planned management activities on viable populations of all wildlife and fish species, including those species that are socially or economically important.

Management Practice A specific action, measure or treatment. (36 CFR 219.3(t) NFMA Regulations)

Management Prescription Management practices selected and scheduled for application on a specific area to attain multiple use and other goals and objectives. (36 CFR 219.3(u) NFMA Regulations)

Mass Movement Down-slope unit movement of a portion of the land's surface, i.e., a single landslide or the gradual, simultaneous downhill movement of the whole mass of loose earth material on a slope face.

Maximum Biological Growth Potential The potential yield from timber stands that are in a managed condition throughout their lives. Management intensity includes full stocking control, genetically improved planting stock and fertilization.

Maximum Modification See Visual Quality Objectives.

Middleground The area between the foreground and background in a landscape. The area located from 1/3 mile to 4 miles from the viewer.

Mid-seral An ecological rating representing the mid-point of natural plant succession

Minerals, Common Variety Deposits which, although they may have value for use in trade or manufacture, do not possess a distinct, special economic value These minerals include sand, stone, gravel, pumicite, cinders and pumice.

Mineral Entry. The filing of a mining claim on public land to obtain the right to any minerals it may contain.

Mineral Entry Withdrawal The exclusion of locatable mineral deposits from mineral entry on areas required for administrative sites by the Forest Service and other areas highly valued by the public. Public lands withdrawn from entry under the General Mining Laws and/or the Mineral Leasing Laws

Minerals Leasable. Coal, oil, gas, phosphate, sodium, potassium, oil shale, and geothermal steam.

Minerals, Locatable Those hard rock minerals which are mined and processed May include certain nonmetallic minerals and uncommon varieties of mineral materials, such as valuable and distinctive deposits of limestone or silica May include any solid, natural, inorganic substance occurring in the crust of the earth, except for the common varieties of mineral materials and leasable minerals

Mineral Production Extraction of mineral deposits.

Minimum Stocking Standard The stocking that must be present on regenerated areas before a new stand can be considered established Minimum stocking is normally stated in terms of number of trees per acre and tree stem heights by species

Mission A major, continuing national area of concern or responsibility of the Forest Service that is directed by legislation, order, or regulation The Forest Service mission represents the basic reason for the existence of the Forest Service as a Federal agency and characterizes the agency's role in solving broad, national problems.

Monitoring And Evaluation. The evaluation on a sample basis of Forest Plan management practices to determine how well objectives have been met, as well as the effects of those management practices on the land and environment

Modification See visual quality objectives.

MTVEST. Economic efficiency model used to compare different levels of investments in calculating the present net value of alternatives.

Multiple Use The management of all the various renewable surface resources of the National Forest System so that they are utilized in the combination that will best meet the needs of the American people making the most judicious use of the land for some or all of these resources or related services over areas large enough to provide sufficient latitude for periodic adjustments in the use to conform to changing needs and conditions: that some lands will be used for less than all of the resources, and harmonious and coordinated management of the various resources, each with the other, without impairment of the productivity of the land, with consideration being given to the relative values of the various resources, and not necessarily the combination of uses that will give the greatest dollar return or the greatest unit output. (36 CFR 219 3)

National Direction Statements of missions, goals, and objectives that guide Forest Service planning.

National Environmental Policy Act (NEPA). An Act, to declare a National policy which will encourage productive and enjoyable harmony between man and his environment, to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man, to enrich the understanding of the ecological systems and natural resources important to the nation, and to establish a Council on Environmental Quality

National Forest Land And Resource Management Plan A plan developed to meet the requirements of the Forest and Rangeland Renewable Resources Planning Act of 1974, as amended, that guides all natural resource management activities and establishes management standards and guidelines for the National Forest System lands of a given National Forest

National Forest Management Act (NFMA) A law passed in 1976 amending the Forest and Rangeland Renewable Resources Planning Act that requires the preparation of Regional and Forest Plans and the preparation of regulations to guide that development.

National Forest Systems All National Forest lands reserved or withdrawn from the public domain of the United States, all National Forest lands acquired through purchase, exchange, donation, or other means, the National Grasslands and land utilization projects administered under Title III of the Bankhead-Jones Farm

Tenant Act (50 Stat 525, 7 U S C 1010-1012), and other lands, waters, or interests therein which are administered by the Forest Service or are designated for administration through the Forest Service as a part of the system (16 U S C 1608)

National Historic Landmark A district, site, building, structure or object of national significance in American history, architecture, archeology or culture and designated a National Historic Landmark by the Secretary of the Interior

National Historic Places Properties of national historical or archeological significance. These properties are listed on the National Register of Historic Places pursuant to the National Historic Preservation Act of 1966. Properties which are determined to be eligible for inclusion in the National Register of Historic Places are entitled to protection pursuant to Section 106 of the National Historic Preservation Act of 1966 and the procedures of the Advisory Council on Historic Preservation, 36 CFR Part 800

National Natural Landmark Areas with ecological and geological features that are nationally significant examples of the Nation's natural heritage These are included on the National Registry of Natural Landmarks

National Recreation Trail Trails primarily near urban areas designated under the National Trails System Act of October 2, 1968 by the Secretary of the Interior or the Secretary of Agriculture to promote public access to travel within, and enjoyment and appreciation of the open air, outdoor areas of the Nation

National Wild and Scenic River System A system of selected rivers as provided in the Wild and Scenic Rivers Act of October 2, 1968 as amended that are authorized by Act of Congress or Act of the State Legislature and designated as a Wild, Scenic or Recreational River which are free flowing streams free of impoundments with varying degrees of accessibility and shoreline development with outstandingly remarkable scenic, recreation, geologic, fish and wildlife, historic, cultural or other similar values, to be preserved for the benefit of present and future generations

Natural History Area A parcel of National Forest System land containing a natural phenomenon which references either the development of the earth's surface or the evolution of life, and which has been classified to protect it and make it available for public use and study A natural history area may be further identified as geological, paleontological, scenic, botanical, or zoological

NEPA. National Environmental Policy Act

NFMA National Forest Management Act

Net Public Benefits An expression used to signify the overall long-term value to the nation of all outputs and positive effects (benefits) less all associated inputs and negative effects (costs) whether they can be quantitatively valued or not Net public benefits are measured by both quantitative and qualitative criteria rather than a single measure or index The maximization of net public benefits to be derived from management of units of the National Forest System is consistent with the principles of multiple use and sustained yield (36 CFR 219 3)

Noncommercial Species Tree species of small size, poor form, or inferior quality which normally do not develop into trees suitable for industrial wood products.

Nondeclining Yield. A level of timber production planned so that the planned sale and harvest for any future decade is equal to or greater than the planned sale and harvest for the preceding decade

Nonproductive Forest See Timber Suitability Classification

OBERS Office of the Bureau of Economic Research and Statistics

Objective A concise, time-specific statement of measurable planned results that respond to preestablished goals An objective forms the basis for further planning to define the precise steps to be taken and the resources to be used in achieving identified goals (36 CFR 219 3)

Objective Function A mathematical expression of the criterion used in linear programming problems

Off-Road Vehicle (ORV) Any motorized vehicle designed for or capable of cross-country travel on or immediately over land, water, snow, ice, marsh, swampland or other natural terrain It includes, but is not limited to, four-wheel drive or low-pressure-tire vehicles, motorcycles and related two-wheel vehicles, amphibious machines, ground-effect or air-cushion vehicles

Opportunity. A proposal that is considered in developing alternative activities, projects or programs where an option exists to invest profitably to improve or maintain a present condition.

Output A good, service, or on-site use that is produced from forest and rangeland resources See FSH 1309 11 for forest and rangeland outputs codes and units measure Examples X06-Softwood Sawtimber Production MBF, X80-Increased Water Yield - Acre Feet, W01-Primitive Recreation Use RVD's

Output, Induced A good, service, or on-site use which is incidental to the objectives of the resource element An example may be improved wildlife habitat acres as an induced output of the timber harvest administration activity which produces a primary output of board feet of timber

PAOT Persons-at-one-time Used to define recreation capacity

Partial Retention See Visual Quality Objective

Patented Mining Claim A patent is a document which conveys a title When patented, a mining claim becomes private property and is land over which the United States has no property rights, except as may be reserved in the patent After a mining claim is patented, the owner does not have to comply with requirements of the General Federal Mining Law, but is required to meet State regulations

Pike and San Isabel National Forests Unit Administrative Unit comprised of the Pike National Forest and the San Isabel National Forest, the Cimarron National Grasslands and the Comanche National Grasslands

Planning Area The area of the National Forest System covered by a Regional Guide or Forest Plan (36 CFR 219 3)

Planning Horizon The overall time period considered in the planning process that spans all activities covered in the analysis or plan and all future conditions and effects of proposed actions which would influence the planning decisions (36 CFR 219 3)

Planning Period One decade The time interval within the planning horizon that is used to show incremental changes in yields, costs, effects, and benefits (36 CFR 219 3)

Policy A guiding principle upon which is based a specific decision or set of decisions

Policy Issue An action or set of circumstances that has bearing on current or future policy

Potential Sensitivity Levels The level of sensitivity for a specific alternative It is based on the Visual Management System, USDA Handbook 462, and reflects not only existing sensitivity, but also the sensitivity of future road and trail systems, and primary use sites

Potential Yield The level of timber harvest achievable by intensive management on every available acre. As used in this document, the management practices included are reforestation, full stocking level control, and use of genetically superior stock

Precommercial Thinning The selective felling or removal of trees in a young stand primarily to accelerate diameter increment on the remaining stems, maintain a specific stocking or stand density range, and improve the vigor and quality of the trees that remain

Predicted Visual Quality Condition The estimated level or condition predicted to occur on-the-ground, in the future, if a specified management practice continues or is implemented

Prescribed Fire. Fire used as a tool to accomplish resource management objectives, under prescribed conditions.

Present Net Value The difference between the discounted value (benefits) of all outputs to which monetary values or established market prices are assigned and the total discounted costs of managing the planning area (36 CFE 219 3)

Preservation See Visual Quality Objectives

Primitive Area See Recreation Opportunity Spectrum

Productive Forest Land See Timber Suitability Classification

Program Sets of activities or projects with specific objectives, defined in terms of specific results and responsibilities for accomplishment

Program Budget A plan that allocates annual funds, work force ceilings and targets among agency management units

Program Budget Level A single, comprehensive integrated program responsive to the Chief's direction that specifies a level of production attainable from a given investment of dollars and other resources. Each budget level represents a complete, full, and independent package within the criteria and constraints identified.

Program Element An individual Forest Service area of responsibility, which in combination with other elements, comprises the statutory or Executive directed mission of the Forest Service. Specific Forest Service program elements are defined in the Management Information Handbook (FSH 1309 11).

Program Proposals A multiyear course of action proposed under a given set of assumptions and constraints.

Programmed Harvest That part of the potential timber yield that is scheduled for harvest and financed annually. It is based on current demand, funding levels, silvicultural practices, and multiple use considerations.

Programmed Visual Quality Objective The visual quality level or condition to be achieved at stated intervals over the life of the approved plan. Used for plan monitoring.

Project An organized effort to achieve an objective identified by location, activities, outputs, effects, and time period and responsibilities for execution.

Project Design The process of developing specific information necessary to describe the location, timing, activities, outputs, effects, accountability, and control of a project.

Public Involvement A Forest Service process designed to broaden the information base upon which agency decisions are made by (1) informing the public about Forest Service activities, plans, and decisions, and (2) encouraging public understanding about and participation in the planning processes which lead to final decisionmaking.

Public Issue A subject or question of widespread public interest relating to Management of the National Forest System (36 CFR 219.3).

Public Participation Activities Meetings, conferences, seminars, workshops, tours, written comments, survey questionnaires, and similar activities designed or held to obtain comments from the general public and specific publics.

RARE II Second Roadless Area Review and Evaluation.

Range Allotment A designated area of land available for livestock grazing upon which a specified number and kind of livestock may be grazed under an allotment management plan. It is the basic land unit used to facilitate management of the range resource on National Forest System lands administered by the Forest Service.

Real Dollar Value A monetary value which compensates for the effects of inflation (36 CFR 219.3).

1978 Real Dollars. The value in purchasing power of the dollar in 1978. The effects of changes in purchasing power since 1978 have been removed.

Receipt Shares The portion of receipts derived from Forest Service resource management that is distributed to state and county governments such as the Forest Service 25 percent fund payments (36 CFR 219.3).

RECREATION OPPORTUNITY SPECTRUM (ROS) Land delineations which identify a variety of recreation experience opportunities in six classes along a continuum from primitive to urban. Each class is defined in terms of natural resource settings, activities which occur within it, and the experience opportunities available. The six classes are:

Primitive Essentially unmodified natural environment where evidence of other users is low, usually three miles or more from roads. Visitors enjoy hiking, horseback riding, nature study and other nonmotorized uses. Visitors experience isolation, independence, closeness to nature, and self-reliance in an environment offering a high degree of challenge and risk.

Semiprimitive Nonmotorized The area is predominantly a natural environment with evidences of other users and generally over 1/4 mile from roads. Visitors enjoy nonmotorized uses and experience a high probability of isolation, independence and closeness to nature. Challenge and risk is generally high. Resource management activities may be present, however, natural appearance is still maintained.

Semiprimitive Motorized Settings, activities and opportunities are generally the same as above, except that primitive roads may be present and motorized use is permitted. Settings, activities and opportunities are affected accordingly though there is still a moderate probability of experiencing isolation from sights and sounds of humans.

Roaded Natural. The area has predominantly a natural appearing environment with moderate evidence of sights and sounds of humans. Concentration of users is moderate to low. Roads of better than primitive class are usually within 1/2 mile. A broad range of motorized and nonmotorized activity opportunities are available. Management activities including timber harvest are present but harmonize with the natural environment.

Rural. These areas are substantially modified. Sights and sounds of others are readily evident. Interactions between users is moderate to high. Numerous facilities are usually present. Challenge and risks are unimportant. Motorized use and facilities are common. Resource management activities may be common and obvious.

Urban. The environment is usually highly modified and contains numerous improvements. Large concentrations of humans can be expected. Experiencing the natural environment is unimportant.

Recreation Visitor Day (RVD) A unit for measuring recreation activities which aggregates 12 visitor hours. This may consist of one person for 12 hours, 12 persons for one hour or any equivalent combination of continuous or intermittent recreation use by individuals or groups.

Reforestation. The restocking of an area with forest trees, whether by artificial seeding, planting or the use of measures to obtain natural seedfall and seedling establishment.

Regulated Forest Land See Timber Suitability Classification.

Regulated Volume Timber removals from suitable lands that meet utilization standards contained in Forest Direction (silvicultural prescriptions section). In general this is wood from trees 7 inches DBH or larger up to a 6 inch top diameter.

Rehabilitation See Visual Quality Objectives.

Renewable Resources Assessment An appraisal of the Nation's renewable resources that recognizes their vital importance and the necessity for long-term planning and associated program development. The Assessment meets the requirements of Section 3 of the Resources Planning Act and includes analyses of present and anticipated uses, demands and supplies of renewable resources: a description of Forest Service programs and responsibilities; and a discussion of policy considerations, laws, and regulations.

Renewable Resources Program The program for management and administration of the National Forest System, for Research, for Cooperative State and Private Forest Service programs, and for conduct of other Forest Service activities developed in accordance with the Forest and Rangeland Renewable Resources Planning Act.

Research Natural Area Designated areas of land established by the Chief of the Forest Service under 36 CFR 251.23 to illustrate or typify for research or educational purposes the important forest and range types of the forest region as well as other plant communities that have special or unique characteristics of scientific interest and importance.

Responsible Line Officer For land management planning purposes, the Forest Service employee who has been delegated the authority to carry out a specific planning action (36 CFR 219.3).

Retention. See Visual Quality Objectives.

Riparian Area Areas adjacent to rivers and streams that lie between the aquatic ecosystem and upland or terrestrial ecosystem. These areas are usually synonymous with flood plains.

Roaded Natural Area See Recreation Opportunity Spectrum.

Rotation The period of years between the initial establishment of a stand of trees and the time when it is considered ready for cutting and regeneration.

RPA. The Forest and Rangeland Renewable Resources Planning Act of 1974.

Roundwood Products Logs, bolts, or other round sections cut from trees for industrial or consumer uses (Pulpwood, fuelwood, piling, poles, posts, hewn ties, mine timbers, and various other round, split or hewn products).

Rural Areas See Recreation Opportunity Spectrum.

Sale Schedule The quantity of timber planned for sale by time period, from the area of suitable land covered by a Forest Plan. The first period, usually a decade, of the selected sale schedule provides the allowable sale quantity. Future periods are shown to establish that long-term sustained yield will be achieved and maintained (36 CFR 219.3).

Sanitation Cutting (Salvage) Sanitation cutting is the removal and exploitation of dead, dying, deteriorating, or susceptible trees to prevent the spread of pests or pathogens. This promotes forest hygiene and recovers trees damaged by fire, wind, insects, fungi, or other injurious agencies before their timber becomes commercially valueless

Sawtimber Trees suitable in size and quality for producing logs that can be processed into lumber For planning purposes, trees with a seven-inch diameter or larger are classified as sawtimber

Scenic Area A place of outstanding or matchless beauty which requires special management to preserve these qualities It may be established under 36 CFR 294 1A

Selection Cut Selection cutting is the periodic removal of mature trees individually or in small groups from an uneven-aged forest By this method both regeneration cutting and tending of immature stand components are accomplished at each entry.

Semiprimitive Motorized Areas. See Recreation Opportunity Spectrum

Semiprimitive Nonmotorized Areas See Recreation Opportunity Spectrum

Sensitivity Analysis A determination of the consequences of varying the level of one or several factors while holding other factors constant

Sensitivity Level A measure of the people's concern for the scenic quality of the National Forest and applied to the scan areas of travel routes, use areas, and water bodies (See USDA Handbook 462)

Shelterwood Method. An even-aged method in which a new stand is established under the protection of a partial canopy of trees The old stand is removed in a series of two or three harvest cuts, the last of which removes the shelterwood when the new even-aged stand is well established

Silviculture The science and art of cultivating (i.e., growing and tending) forest stands

Silvicultural System A management process whereby forests are tended, harvested, and replaced, resulting in a forest of distinctive form Systems are classified according to the method of carrying out the fellings that remove the mature crop and provide for regeneration and according to the type of forest thereby produced (36 CFR 219 3)

Site Index A measure of site quality based on the height of dominant trees in a stand at an arbitrary base age (usually 50, 80 or 100 years depending on tree species).

Site Quality The capability of a land area to grow trees or other vegetation at a rate which is relatively uniform and predictable. Site quality is estimated using a measurement called site index.

Slash The wood residue left on-the-ground after harvesting, silvicultural operations, windstorms, fire, or road building It includes unutilized logs, uprooted stumps, broken or uprooted stems, tops, branches, leaves, etc

Snag. A dead or obviously dying standing tree The interior of the snag may be sound or rotted

Spatial Feasibility The feasibility of applying management prescriptions to the National Forest System landbase while insuring that incompatible prescriptions were not applied on adjacent areas

Special Use Permits Permits authorizing the occupancy and use of land

Stand. An aggregation of trees, shrubs, forbs or grasses (plant community) occupying a specific area and sufficiently uniform in composition (species), age arrangement and condition as to be distinguishable from adjoining areas (stands)

Structural (successional) Stage. "A stage or recognizable condition of a plant community which occurs during its development from bare ground to climax" (Thomas 1979.491) Structural stages are usually defined only in coniferous or other forested ecosystems (although successional stages may be defined in any ecosystem), in which five stages can be seen grass forb shrub seedlingsapling pole mature old-growth.

Suitability The appropriateness of applying certain resource management practices to a particular area of land as determined by an analysis of the economic and environmental consequences and the alternative uses foregone. A unit of land may be suitable for a variety of individual or combined management practices

Sustained Yield The achievement and maintenance in perpetuity of a high-level annual or regular periodic output of the various renewable resources of the National Forest without impairment of the productivity of the land. (36 CFR 219.3(hh) NFMA Regulations)

Threatened Species Any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range and which has been designated in the Federal Register by the Secretary of Interior as a threatened species

Three-Step Shelterwood An even-aged cutting method which provides a source of seed and protection for regeneration. The old stand (the shelterwood) is removed in three successive shelterwood cuttings usually termed preparatory, seed and overstory removal cuts

Threshold Limit. Maximum amount of sediment stream system can carry without changing existing channel stability.

Thinning Cutting made in an immature stand to accelerate the diameter increment (annual growth) and improve the average form of the remaining trees

Timber Production The purposeful growing, tending, harvesting, and regeneration of regulated crops of trees to be cut into logs, bolts, or other round sections for industrial or consumer use. For planning purposes, the term "timber production" does not include production of fuelwood (36 CFR 219.3)

TIMBER SUITABILITY CLASSIFICATION National Forest land is evaluated under each of the land management alternatives to determine its suitability for timber management. The following descriptions pertain to each of the suitability classifications

Nonforest Land which has never supported forests and lands formerly forested where timber management is precluded by development for other uses (administrative sites, roads, and pipeline or powerline corridors, for example)

Forest Land Lands capable of supporting trees whose canopies can cover 16 percent or more of the land surface, or lands formerly having had such tree cover and not currently developed for nonforest use

Productive Forest Land Forest land capable of growing trees at a rate of 20 cubic feet per acre per year or more (also referred to as capable forest land)

Nonproductive Forest Land Forest land incapable of growing trees at a rate of 20 cubic feet per acre per year or more

Productive Reserved Productive forest land within legislatively reserved areas (wilderness areas, for example)

Productive Deferred Productive forest land within legislatively or administratively deferred areas (wilderness study areas, for example)

Available Forest Land Productive forest land that is not reserved or deferred from timber management (also referred to as commercial forest land).

Unavailable Forest Land Lands classed as either productive reserved or productive deferred. Unavailable lands have been legislatively or administratively withdrawn from timber production (wilderness, wilderness study areas)

Suitable Forest Land Available forest lands which can be harvested without significant degradation of inherent productivity and on-site resources (wildlife habitat, water quality, and soil stability, for example).

Unsuitable Forest Land Available forest lands which cannot be harvested because of technological constraints (logging systems not available for steep slopes) or significant potential for irreversible resource damage (soil or slope stability problems, sensitive watershed condition and excessive surface rock, for example). Unregulated lands are also unsuitable, including those lands that are otherwise suitable but are surplus to timber production needs for the plan period

Regulated Forest Land Suitable forest lands which will receive scheduled silvicultural treatments during the plan period

Unregulated Forest Land Available forest lands where silvicultural treatment is not a goal of management and harvest volumes (if any) are unscheduled (administrative and developed recreation sites, and the Manitou and Fremont Experimental Forests, for example)

Trailhead. Developed recreation sites with parking, signing, and other facilities designated to provide a take-off point for trail users at major access points and termini of a trail

Transitory Range Relatively short-term grazing areas produced by timber harvest or other activity that temporarily increases forage production

Two-Step Shelterwood An even-aged cutting method which provides a source of seed and protection for regeneration. The old stand (the shelterwood) is removed in two successive shelterwood cuttings, usually termed seed and overstory removal cuts.

Unavailable Lands Those portions of the Forest administratively and legislatively excluded from use for timber harvest or livestock grazing. See also Timber Suitability Classification.

Unconstrained Maximum Potential The maximum potential of the National Forest to produce a selective output without regard to minimum outputs of other resources or to legal or administrative constraints.

Uncontrollable Outputs. Outputs from National Forest system lands that are naturally occurring or that occur without any action by management. Examples are water yield and dispersed recreation activities such as hunting and fishing.

Uneven-Aged Management The application of a combination of actions needed to simultaneously maintain continuous high-forest cover, recurring regeneration of desirable species, and the orderly growth and development of trees through a range of diameter or age classes to provide a sustained yield of forest products. Cutting is usually regulated by specifying the number or proportion of trees of particular sizes to retain with each area, thereby maintaining a planned distribution of size classes. Cutting methods that develop and maintain uneven-aged stands are single-tree selection and group selection. (36 CFR 219.3)

Unregulated Forest Land See Timber Suitability Classification.

Unregulated Volume Volume from topwood (material between a 4 and 6 inch top diameter), cubic pole timber (trees between 5 and 7 inches DBH) and all fiber removed from unsuitable lands. Also see Regulated Volume.

Unsuitable Forest Land See Timber Suitability Classification.

Urban Areas See Recreation Opportunity Spectrum.

USC United States Code.

Variety Class A measure of the landscape scenic value in terms of degrees of natural-appearing variety. (See USDA Handbook 462)

Vertical Diversity The vegetational diversity resulting from several layers of vegetation created by trees of different heights and size classes in the same stand.

Visual Absorption Capability (VAC) The ability of the landscape to absorb management activities without alteration of the characteristic landscape. Rated as high, moderate and low.

VISUAL QUALITY OBJECTIVES Goals that describe acceptable degrees of visual alteration allowed in the natural landscape.

Preservation Allows only ecological changes. Management activities, except for very low visual impact recreation facilities, are prohibited. This objective applies to specially classified areas including wilderness.

Retention Management activities are not evident to the casual forest visitor.

Partial Retention Management activities remain visually subordinate to the natural appearance of the landscape.

Modification Man's activities may dominate, but only as a natural appearing composition when viewed from any distance.

Maximum Modification The least restrictive objective allowing man's activities to dominate. They must present a natural appearing composition only when viewed from a distance.

Unacceptable Modification Activities or facilities that contrast in form, line, color, or texture that are excessive.

Rehabilitation A short-term management objective used to restore landscapes containing undesirable visual impacts to the desired visual quality level.

Enhancement A short-term management alternative aimed at increasing positive visual variety where little variety now exists.

Visual Resource The composite of basic terrain, geologic features, water features, vegetative patterns, and land use effects that typify a land unit and influence the visual appeal of the unit.

Visual Resource Capability. The inherent capability of the land to produce attractive landscape and interpreted in terms of existing and potential variety classes as well as the lack of dominant unnatural-appearing visual alteration which cannot be rehabilitated and derived from the existing VQO inventory

Visual Resource Suitability A combination of the inventory visual quality objective and the visual absorption capacity (VAC) VAC is used to identify the probable negative visual impact of proposed management activities and relative cost in meeting the VQO The inventory VQO and VAC can be used to help determine both where it is appropriate to create and/or maintain natural-appearing diversity as well as mitigate negative visual impacts

Wilderness "Wilderness Area" An area of undeveloped Federal land designated wilderness by Congress, retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions and which (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable, (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least 5,000 acres or is of sufficient size as to make practical its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological, or features of scientific, educational, scenic, or historical value

Winter Range Habitat used by wildlife species during the winter months to provide food and shelter

APPENDIX C

APPENDIX C

WILDERNESS STUDY AREA AND FURTHER PLANNING AREA REPORTS

GREENHORN MOUNTAIN WILDERNESS STUDY AREA

BUFFALO PEAKS WILDERNESS STUDY AREA

SPANISH PEAKS WILDERNESS STUDY AREA

SANGRE DE CRISTO WILDERNESS STUDY AREA

LOST CREEK FURTHER PLANNING AREA

INTRODUCTION

This Appendix discloses the site-specific analyses which took place during the development of the Pike and San Isabel National Forest Land and Resource Management Plan (Forest Plan) regarding Greenhorn Mountain, Spanish Peaks, Buffalo Peaks, and Sangre de Cristo Wilderness Study Areas and Lost Creek Further Planning Area. Individual reports on each area are contained in this appendix. They have been updated in response to public comment, hearing testimony and new information which became available after the Draft Environmental Impact Statement (DEIS) and Proposed Forest Plan were issued on September 2, 1982.

The first chapter of the section related to each Wilderness Study Area and the Further Planning Area contains an index directing the reader to the pages in the Final EIS where specific information relating to each Wilderness Study Area and the Further Planning Area may be found.

The second chapter contains the alternatives which were considered in the development of the Forest Plan; the third chapter contains a description of the affected environment for each area analyzed; and the fourth chapter contains a discussion of the anticipated environmental consequences of implementing each alternative. The analysis of the suitability or unsuitability of each area for inclusion in the National Wilderness Preservation System is in Chapter IV of this document under the Wilderness section.

The alternative and the environmental consequences chapters have undergone the most change. Additional alternatives have been added to the discussion to more adequately reflect the comprehensive analysis which took place during the development of the Forest Plan. In the DEIS, there were two alternatives shown, suitable and unsuitable, for each of the five areas. This section has been expanded. There is now an alternative of continuation of current management or "No Action". This was included to reflect the current situation and to provide a basis from which to estimate the changes which could occur.

The "unsuitable" alternative from the DEIS has been retitled and is now called the "Resource Development" alternative. This is to reflect the situation which could occur if the resources in each area were developed consistent with the Forest Plan objectives.

In other cases, additional alternatives are included to more accurately tie the analysis for these areas to the Forest Plan alternatives.

The environmental consequences discussion has been expanded considerably so that the effects of implementing all of the alternatives are disclosed to the degree possible.

WILDERNESS STUDY AREA REPORT
GREENHORN MOUNTAIN
SAN ISABEL NATIONAL FOREST
PUEBLO AND HUERFANO COUNTIES
COLORADO

CHAPTER I

INTRODUCTION AND INDEX TO FOREST PLAN FEIS

The information presented in this Greenhorn Mountain Wilderness Study section of Appendix C was used to provide the data that appears in the main body of the Final Environmental Impact Statement (FEIS) for the Pike and San Isabel National Forests Land and Resource Management Plan (Forest Plan). For your convenience, the following index indicates where in the Forest Plan FEIS certain information about the Wilderness Study Area is displayed.

<u>Forest Plan FEIS Chapter Title</u>	<u>Chapter Page</u>
Purpose and Need -----	I-2
Alternatives Including the Proposed Action -----	II-28
Affected Environment -----	III-71
Environmental Consequences (Wilderness Suitability or Unsuitability) -----	IV-35
Consultation With Others -----	VI-1

CHAPTER II

ALTERNATIVES

OVERVIEW

The evaluation of the Greenhorn Mountain Wilderness Study Area (WSA) was mandated by Congress in the "Colorado Wilderness Act" (Public Law 96-560) of December 22, 1980. The WSA 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 FEIS alternatives are displayed in Figure II-1 and Table II-A.

Additional alternatives showing possible boundary modifications are not considered in detail. Significant changes within the study area did not seem practical or warranted and were not supported by public response.

SUITABLE FOR WILDERNESS DESIGNATION ALTERNATIVE - ALTERNATIVE 1

This alternative would result in a recommendation to Congress that the entire 22,300 acres Greenhorn Mountain Wilderness Study Area is suitable for inclusion in the National Wilderness Preservation System. This alternative is the same as Alternative C in the Forest Plan FEIS.

Under this alternative, 19,210 acres would be managed under Management Area Prescription 8B and 3,090 acres under 8C.

In areas managed under Prescription 8B, emphasis is on protecting and perpetuating the natural biophysical conditions. 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. 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.

A minor variation of the previously described alternative has also been considered. This variation is the same as Alternative A in the Forest Plan FEIS and is the Proposed Action.

Under this variation, a minor boundary adjustment would be made to protect wilderness characteristics and to improve manageability. This adjustment would include the southernmost 1.6 miles of the Greenhorn Road within the area recommended for wilderness. When included, the road would be converted to a trail.

UNSUITABLE FOR WILDERNESS DESIGNATION (NO ACTION) ALTERNATIVE
- ALTERNATIVE 2

This alternative is the same as Alternative B of the Forest Plan FEIS.

This alternative, would result in a recommendation to Congress that the entire Greenhorn Mountain Wilderness Study Area is unsuitable for inclusion in the National Wilderness Preservation System.

Under this alternative, 680 acres would be managed under Forest Plan Management Area Prescription 2B, 10,660 acres under Prescription 3A, 5,290 acres under 4B, 1,670 acres under 5B, and 4,000 acres under 6B.

In areas managed under Prescription 2B, management 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. Timber harvest methods are clearcutting in aspen and lodgepole pine, and shelterwood in interior ponderosa pine, mixed conifer and Englemann spruce-subalpine fir.

In areas managed under Prescription 3A, management 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, management 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 5B, management 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.

In areas managed under Prescription 6B, management emphasis is on livestock grazing. Range condition is at or above satisfactory levels. Range condition is maintained through vegetation treatments, livestock management, and regulation of other resource uses. Conflicts between livestock and big game are resolved in favor of livestock.

UNSUITABLE FOR WILDERNESS DESIGNATION (RESOURCE DEVELOPMENT) ALTERNATIVE
- ALTERNATIVE 3

Like Alternative 2, Alternative 3 would result in a recommendation that all of the Greenhorn Mountain Wilderness Study Area is unsuitable for

inclusion in the National Wilderness Preservation System. Alternative 3 is the same as Alternative D of the Forest Plan FEIS. It tends to emphasize resource development to produce commodity outputs. Under this alternative, 12,920 acres would be managed under Management Area Prescription 3A, 2,480 acres, under Prescription 4B, 1,670 acres under 5B, 4,000 acres under 6B and 1,230 acres under 7A. Management Area Prescriptions 3A, 4B, 5B and 6B are described under Alternative 2. In areas managed under Prescription 7A, management emphasis is on wood fiber production and utilization. Harvest methods by forest cover type are clearcutting in aspen, lodgepole pine, Englemann spruce-subalpine fir, and shelterwood in interior ponderosa pine and mixed conifers. Recreation opportunities range from roaded natural to semiprimitive non-motorized depending on the travel management requirements for the area.

A variation of Alternative 3 which places less emphasis on semiprimitive nonmotorized recreation has also been considered. This variation is the same as Alternative E of the Forest Plan FEIS. Under this variation, 10,110 acres would be managed under Prescription 3A, 5,290 acres under Prescription 4B, 1,670 acres under 5B, 4,000 acres under 6B and 1,230 acres under 7A.

Detailed descriptions of the Forest Plan Management Area Prescriptions are found in the Forest Land and Resource Management Plan, Chapter III, Management Direction.

SUMMARY OF ENVIRONMENTAL AND ADMINISTRATIVE CONSEQUENCES

Table II-B displays a summary of expected environmental consequences under each alternative. In summary, the major differences are in availability of mineral resources and the availability of the area for vegetation management to achieve increased water yields and for maintenance and improvement of wildlife habitat.

TABLE II-A

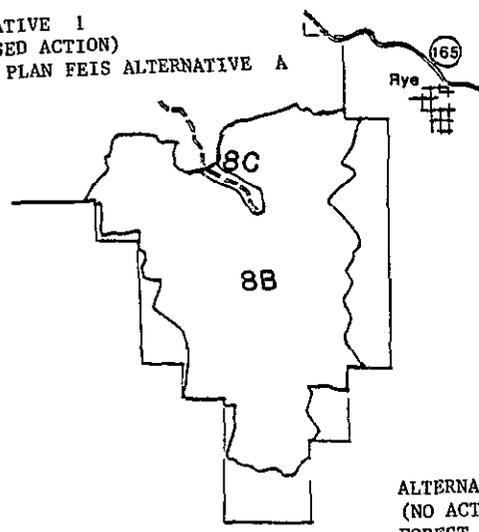
FOREST PLAN FEIS ALTERNATIVES

Management Area *	Description, Management Prescription Emphasis	Alternative				
		A	C	B	D	E
8B	Primitive wilderness opportunity natural setting	21900	19210	0	0	0
8C	Semiprimitive wilderness (essentially natural setting)	400	3090	0	0	0
2B	Roaded natural recreation on or near roads	0	0	680	0	0
3A	Semiprimitive recreation nonmotorized	0	0	10660	12920	10110
4B	Emphasizes wildlife habitat management	0	0	5290	2480	5290
5B	Emphasizes wildlife winter range habitat	0	0	1670	1670	1670
6B	Emphasizes forage for livestock	0	0	4000	4000	4000
7A	Emphasizes tree stand management	0	0	0	1230	1230

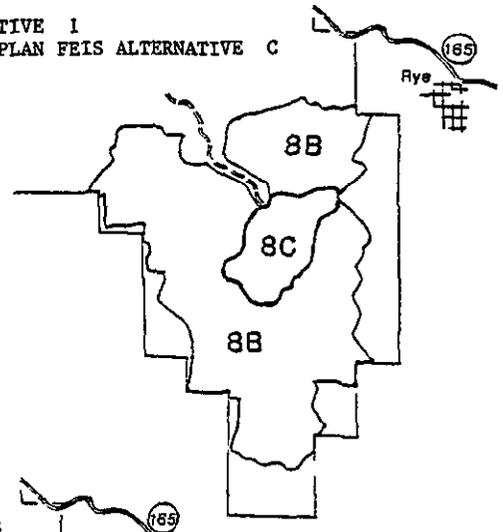
* Detailed descriptions of the Management Area Prescriptions are displayed in Chapter III, Management Direction, Forest Plan.

GREENHORN MOUNTAIN WILDERNESS STUDY AREA ALTERNATIVES

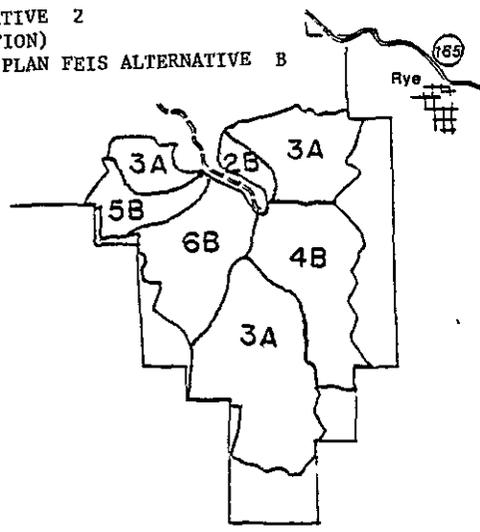
ALTERNATIVE 1
(PROPOSED ACTION)
FOREST PLAN FEIS ALTERNATIVE A



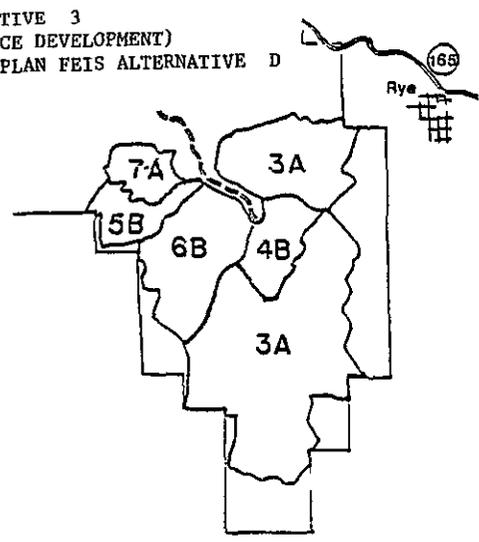
ALTERNATIVE 1
FOREST PLAN FEIS ALTERNATIVE C



ALTERNATIVE 2
(NO ACTION)
FOREST PLAN FEIS ALTERNATIVE B



ALTERNATIVE 3
(RESOURCE DEVELOPMENT)
FOREST PLAN FEIS ALTERNATIVE D



ALTERNATIVE 3
(RESOURCE DEVELOPMENT)
FOREST PLAN FEIS ALTERNATIVE E

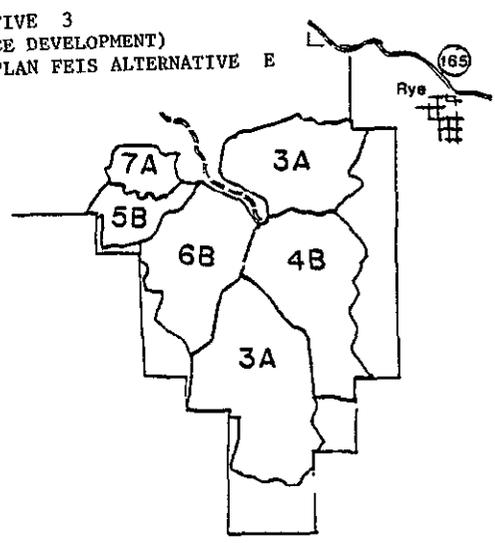


TABLE II-B

SUMMARY OF ENVIRONMENTAL AND ADMINISTRATIVE CONSEQUENCES

<u>Resource</u>	Alternatives	
	1	2
	<u>(Suitable)</u>	<u>(Unsuitable-No Action)</u> (same as resource development)
<u>Wilderness</u>	22,300 acres	-0-
Potential loss of wilderness character:		
Natural Integrity	None (With Management)	Low/Increased
Apparent Naturalness	None	Low/Increased
Solitude	Low	Low
Primitive Recreation Opportunity	Low	None
Supplemental Attributes	None	None
Scenic Value	Low	None (with Management)
<u>Minerals</u> (including oil and gas)		
Cost of Exploration	None (withdraw)	No Change
Likelihood of mineral exploration and development	Decreased After 12/31/83	No Change
Chance of conflicts with wilderness values	Decreased	No Change
Mineral leasing effects	-0-	22,300 acres (0-No Action)
Leasable	-0-	22,300 acres (0-No Action)
No Leasing (Area will be withdrawn)	22,300 acres	-0-
<u>Timber</u>		
Tentatively suitable (Reserved)	11,600 acres	11,600 acres
Growing Stock Volume	44.3 MMBF <u>1/</u>	44.3 MMBF <u>1/</u>
Current annual allowable sale quantity (slopes less than 45 percent)	-0-	0.4 MMBF <u>1/</u> (0-No Action)
<u>1/ MMBF = Million Board Feet</u>		

Table II-B Continued

<u>Resource</u>	<u>(Suitable)</u>	<u>(Unsuitable-No Action)</u> (same as Resource Development)
Long term sustained yield Productive Forest land - All Slopes	-0-	1.8 MMBF <u>1/</u> (0-No Action)
Slopes less than 45 percent	-0-	0.6 MMBF <u>1/</u> (0-No Action)
<u>Water Quantity</u>		
Water yield increase potential	-0-	590 acre-feet (0-No Action)
<u>Water Quality</u>		
Risk of pollution caused by recreation and other uses	Possible	Increased
Risk of pollution caused by surface disturbing activities	Decreased	Increased
<u>Water Uses</u>		
Effects on existing water uses	None	None
Potential water storage development	Low	Low
<u>Range</u>		
Livestock Forage	923 AUM's <u>2/</u>	923 AUM's <u>2/</u>
<u>Wildlife</u>		
Improve winter range (Deer and Elk)	-0-	2,700 acres (0-No Action)
Maintain or improve diversity by intensive management	-0-	11,600 acres (0-No Action)

1/ MMBF = Million Board Feet

2/ AUM's = Animal Unit Months

Table II-B Continued

<u>Resource</u>	<u>(Suitable)</u>	<u>(Unsuitable- No Action)</u> <u>(Same as Resource Development)</u>
<u>Recreation</u>		
Recreation Opportunity Classes		
Roaded Natural	-0-	691 acres
Semiprimitive		
Motorized	-0-	-0-
Nonmotorized	22,300 acres	21,639 acres
Area closed to Off Road		
Vehicle (ORV) Use	22,300 acres	22,300 acres <u>3/</u>
Annual Recreation Use at		
Capacity	628 PAOT <u>4/</u> 37,639 RVD's <u>5/</u>	659 PAOT <u>4/</u> 45,498 RVD's <u>5/</u>
<u>Land Ownership</u>		
Change in priority for		
acquisition of private		
inholdings	None	None

3/ Per Closure Order

4/ PAOT = People-At-One-Time

5/ RVD's = Recreation Visitor Days

SUMMARY OF WILDERNESS SUITABILITY EVALUATION

Chapter IV describes in detail the wilderness suitability evaluation conducted for the Greenhorn Mountain Wilderness Study Area. A conclusion of suitability or unsuitability considers the area's capability, availability, and need for wilderness.

IS THE AREA CAPABLE OF WILDERNESS DESIGNATION?

Both physical characteristics and manageability of the area were evaluated. The Wilderness Attribute Rating System (WARS) described in Chapter III, indicates a rating of 19. This rating was reviewed for this report and was not changed.

The Greenhorn WSA is manageable as wilderness. Boundaries are located so that conflicts with outside uses can be avoided. Boundaries can be generally described and located so they are recognizable on the ground, conform to topographic features, and provide adequate public access.

Under the preferred alternative (suitable) a minor boundary adjustment would be made to improve manageability by including the last mile of the Greenhorn Road south of North Peak.

Under the suitable alternative, the area will be drawn from all forms of mineral activities under general mining and leasing laws subject to valid existing rights. None of the area would be available for leasing.

IS THE AREA AVAILABLE FOR WILDERNESS?

The availability of the area was considered in light of competing demands for resources and the effects of wilderness management on adjoining lands.

A significant local concern for this area surfaced during RARE II. The concern was with fire and insect and disease protection and the potential for their spread to adjacent lands and private property. The location of the study area boundary as established in RARE II about a mile from National Forest Boundary offers adjoining property adequate protection and excluded otherwise unsuitable lands. As a result those concerns were for the most part resolved in RARE II.

The mineral survey indicates a low resource potential for both locatable and leasable resources except for one small area where studies indicate as having a low to moderate mineral resource potential for locatable minerals.

The suitable alternative would withdraw the entire area from mineral leasing.

The timber is not needed to meet targets identified in the Forest Plan.

The Greenhorn Mountain WSA has the capability for increasing water yield. However, the steep slopes and many rocky outcrops severely limit vegetation management opportunities, for water yield increases.

The current nonmotorized recreation opportunities would continue under the suitable alternative or unsuitable alternative.

Effects of either alternative would be minimal on the social and economic situation in the affected HRU's. Potential values for resource outputs are relatively low. Local communities are not directly dependent on the WSA for either wilderness or nonwilderness associated benefits.

IS THE AREA NEEDED FOR WILDERNESS?

The Pike and San Isabel National Forests contain 257,080 acres of wilderness. In addition, other wildernesses with approximately 2 million acres are within a 150 mile radius of this WSA. However, wilderness is not readily available to the population of southeastern Colorado. The WSA would improve geographic distribution of units of the National Wilderness Preservation System in southeastern Colorado area.

The Statewide Comprehensive Outdoor Recreation Plan for Region 7 recommends the Forest Service place increased priority on picnicking and four-wheel drive opportunities. However, due to the generally steep terrain, this WSA is not conducive to providing for this need. There is no apparent conflict between either alternative and the Huerfano and Pueblo County Recreation Plan goals.

The WSA is not needed to improve representation of landforms and ecosystems in the National Wilderness Preservation System. The WSA provides existing and potential habitat for the greenback cutthroat trout, which is Federally classified as a threatened species. Potential habitat for the peregrine falcon, which is Federally classified as an endangered species, is also found within the WSA.

CHAPTER III

AFFECTED ENVIRONMENT

The suitability or unsuitability of the Greenhorn Mountain Wilderness Study Area for addition to the National Wilderness Preservation System is a function of the physical, biological, 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 effects on the environment which would result from implementation of the alternatives.

PHYSICAL SETTING

PHYSIOGRAPHY

The Greenhorn Mountain WSA is dominated by Greenhorn Mountain, with elevations varying from 7,600 feet on the south end to 12,367 feet on top of Greenhorn Mountain. The eastern slopes facing the plains of southeastern Colorado are very steep and rocky. The remainder of the slopes are less steep, but the topography is dissected with numerous small canyons and sharp ridges. There is some flat to gently rolling terrain immediately south of Greenhorn Mountain and in the northwestern corner of the WSA.

GEOLOGY AND SOILS

The Greenhorn Mountain WSA is located on the southern end of the Wet Mountains which are the eastern most range of the Colorado Rockies south of Canon City, Colorado. The crest of the Wet Mountains, including Greenhorn Peak, is formed of precambrian granite. The structure of the eastern side of the Wet Mountains is similar to that of the Front Range with sedimentary layers exposed which at one time overlaid the exposed granite. On the western side, westward dipping sedimentary layers are completely submerged in Cenozoic lava flows and debris from the mountains.

No significant geologic hazards have been identified within the area.

Soils are classed moderate to low in inherent fertility over the WSA. Soil erosion hazard is classed moderate to high. Present soil erosion and suspended sediment production is within acceptable limits, with the exception of the Maes Creek burn area where soil erosion has been accelerated. Soil erosion could be expected to increase significantly with ground disturbing activities unless proper mitigating measures are undertaken. The potential for mass movement is considered moderately high over most of the area. Even with low or moderate soil fertility, however, timber productivity is fair to good.

VEGETATION

The Greenhorn Mountain area contains a wide variety of vegetation, ranging from pinon-juniper along the dry southern fringes of the area through ponderosa pine and Douglas-fir to spruce-fir at higher elevations and eventually, into alpine tundra on the upper reaches of Greenhorn Mountain. Approximately 65 percent of the area is forested and the other 35 percent is nonforested grass, brushland and rock.

CLIMATE

The climate of the study area is characterized by warm summers and cold winters. Temperatures have a wide seasonal variation with monthly averages varying 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.

Annual precipitation varies and is influenced by topographic features. The higher elevations around Greenhorn Peak receive 35 to 45 inches and the lower elevations along the southern boundary receive 12 to 23 inches. Over 60 percent of the annual precipitation falls as snow at the upper elevations and less than 40 percent at the lower elevations.

RESOURCES AND SUPPORT ELEMENTS

WILDERNESS

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 include natural integrity, apparent naturalness, outstanding opportunities for solitude, and outstanding opportunities for a primitive and unconfined recreation experience. In addition, supplemental attributes including ecological, geological, or other features of scientific, educational, scenic, or historical value were considered. The possible rating could be from 4 to 28.

The attributes of natural integrity and apparent naturalness both rated high to moderate due to the area's rugged terrain and the lack of past development activities. Opportunities for solitude are generally moderate. The opportunities for primitive recreation are rated high. Supplemental attributes included scenic values.

The rating is summarized as follows:

	<u>Rating</u>
Influence of impacts on natural integrity	6
Influence of impacts on apparent naturalness	4
Opportunities for solitude	4
Opportunities for unconfined recreation	5
Rating Scale 1-7	
TOTAL WARS RATING	19

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

The overall rating for the supplemental attributes was 3 or "significant" based on a scale of 1 to 5.

Geographic Distribution of Wilderness.

The Pike and San Isabel National Forests contain 257,080 acres of wilderness. In addition, other wildernesses occur within 150 miles as shown in Table III-A. The Study Area Relationship Map, Figure III-1 shows the WSA in relationship to other areas within and adjacent to the Pike and San Isabel National Forests.

FIGURE III-1

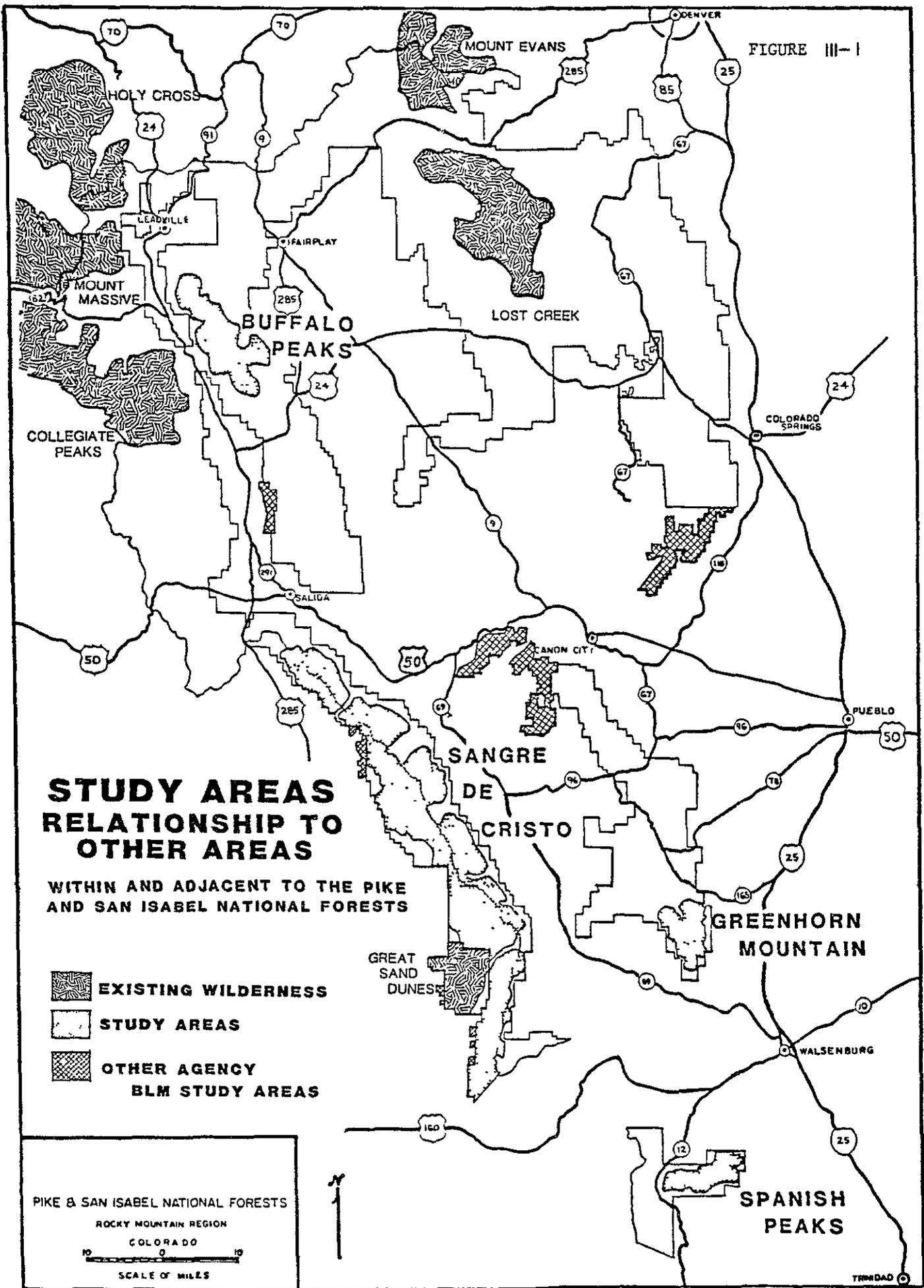


TABLE III-A

WILDERNESS WITHIN 150 AIRLINE MILES
OF THE GREENHORN MOUNTAIN WSA

<u>Wilderness</u>	<u>Pike and San Isabel National Forests</u> (net) Acres	<u>Other National Forest (Colorado and New Mexico</u> (net) Acres	<u>Other Agency</u> (net) Acres
<u>Within 50 Miles</u>			
Great Sand Dunes National Park Service			<u>33,450</u>
Subtotal			33,450
<u>Within 100 Miles</u>			
Collegiate Peaks	81,450	78,450	
La Garita		108,486	
Lost Creek	106,000		
South San Juan		133,463	
Cruces Basin		18,000	
Hunter-Fryingpan		74,450	
Latir Peak		20,000	
Wheeler Peak		<u>19,661</u>	
Subtotal	<u>187,450</u>	<u>378,060</u>	
<u>Within 150 Miles</u>			
Eagles Nest		133,688	
Maroon Bells - Snowmass		174,060	
Mount Evans	34,670		
Mount Massive	26,000		
Holy Cross	8,900	107,580	
Raggeds		68,000	
West Elk		194,412	
Big Blue		97,700	
Weminuche		463,244	
Chama River Canyon		50,260	
Pecos		223,333	
San Pedro Park		<u>41,132</u>	
Subtotal	<u>69,630</u>	<u>1,666,169</u>	
TOTAL	257,080	2,044,229	<u>33,450</u>

TOTAL WILDERNESS = 2,334,759 ACRES

The Greenhorn Mountain area is approximately 30 air miles, and approximately 2 or more hours driving time from the Great Sand Dunes Wilderness (National Park Service), and 90 air miles or 2½ hours driving time from the southern end of the Collegiate Peaks Wilderness.

Although there are over 2 million acres of wilderness within 150 miles, this WSA is geographically separated from other wilderness.

MINERALS

The Greenhorn Mountain WSA does not have any developed mineral resources or proven reserves. A preliminary mineral report for the Greenhorn Mountain WSA by the U.S. Bureau of Mines (MLA 26-83) indicates there are no known significant occurrences of minerals within the area which could be considered an identified mineral resource. Potential oil and gas reservoir rock outcroppings occur in small areas in the study area, however, no favorable traps have been identified. There is one pending mineral lease application covering about 20 acres of the WSA as shown in Figure III-2. The minerals assessment conducted as a part of RARE II shows a rating of 60 for the occurrence of hardrock minerals and a 75 for the occurrence of uranium based on a rating scale of 0 to 100.

Table-III-A and the Minerals Potential Map, Figure III-3, shows mineral information derived as a part of the Forest planning process based on available information and geology of the area. A U.S.G.S. mineral survey has been completed for the area.

TABLE III-A

MINERAL POTENTIAL

	<u>Acres (thousands)</u>
Total Area	22.3
Known reserves or producing sites.	0
Moderate to high potential for locatable minerals.	2.7
Moderate to high potential for leasable minerals	.5
Low potential for locatable minerals.	19.6
Low potential for leasable minerals.	21.8

Approximately 85 to 90 percent of the area has low potential for locatable and leaseable minerals.

TIMBER

Much of the timber is mature, overmature, or approaching maturity. Some stands with pole-size trees or seedlings/saplings are also present in the area. Forest inventory data showed very little understocked forest land, although this recently changed when the Maes Creek fire burned approximately 2,300 acres of old-growth spruce/fir in the spring of 1978. Aspen, Engelmann spruce-white fir are the predominant forest types. Bristlecone pine, limber pine, pinon pine/juniper and several nonforest types (subalpine dwarf willows, montane meadow, mountain-mahogany, etc.) are also present in limited amounts.

Only a small amount of logging has occurred in the WSA. The preponderance of steep slopes (67 percent of the tentatively suitable forest land is over 45 percent slope) and the inaccessibility of much of the operable forest land discouraged early harvesting. Historic timber uses were limited to railroad ties, mine props, sawtimber, or other local building material.

The Greenhorn Mountain Wilderness Study Area encompasses approximately 22,300 acres, of which 53 percent is forest land capable of producing timber products as shown on Table III-C and Figure III-4. Approximately 3,800 acres (33 percent) of the capable land base is on slopes less than 45 percent and suitable for logging with conventional harvesting systems.

TABLE III-C
FOREST LAND CLASSIFICATION

<u>Classification</u>	<u>Total Area</u>
Total Area	22.3 (thousand acres)
Tentatively Suitable Forest Land	11.6
Tentatively Suitable Conventional Logging slopes less than 45%	3.8
Tentatively Suitable Slopes greater than 45%	7.8
Not Suitable	2.8
Nonforested and other unsuitable	7.9

The WSA has an annual allowable sale quantity (based on current growth) of 115,000 cubic feet (422,000 board feet) for suitable lands on slopes of 45 percent or less. The long-term annual sustained yield capacity (based on a managed forest condition) is 534,000 cubic feet (1,813,000 board feet), of which 170,000 cubic feet (603,000 board feet) pertaining to suitable forest land on slope of 45 percent or less. Growing stock volume on the WSA is about 44.3 million board feet.

AIR QUALITY

Air quality is considered to be excellent over the WSA. The WSA is designated as a Class II area under Section 126 (b) of the Clean Air Act.

HYDROLOGY AND WATER QUALITY

The Greenhorn Mountain WSA covers portions of four watersheds. They are Turkey Creek, Maes Creek, Apache Creek and Greenhorn Creek. Greenhorn Creek flows into the St. Charles River while the other streams are tributaries of the Huerfano River.

Streams within the study area are classified as A-type streams. A-type streams are characterized by steep gradients (3 percent plus) coarse, large bed and bank materials, low sediment production, limited fisheries habitat, and stable channels. Steep, narrow channels limit riparian habitat to areas immediately along the stream banks.

GREENHORN MOUNTAIN WILDERNESS STUDY AREA

FIGURE III-2

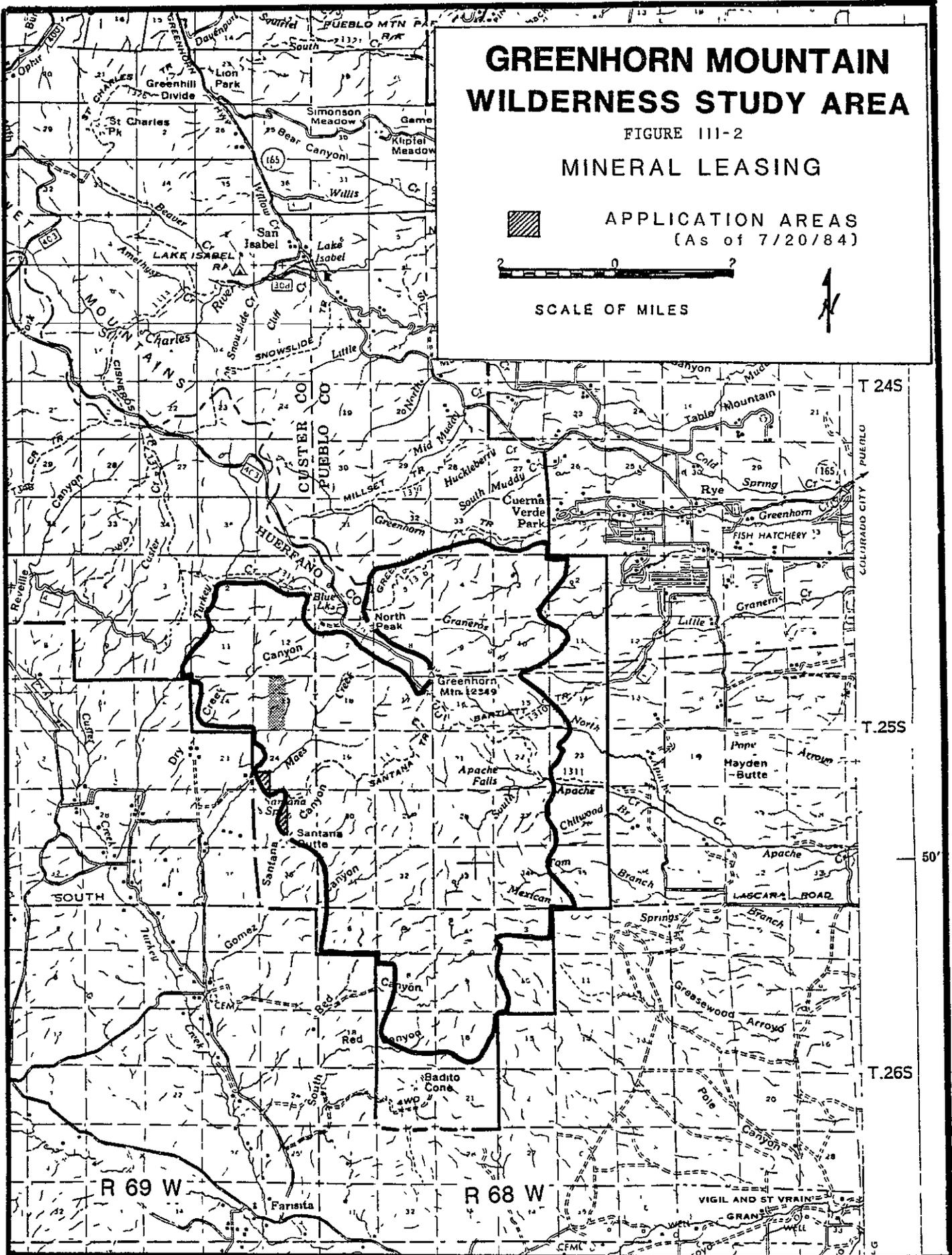
MINERAL LEASING



APPLICATION AREAS
(As of 7/20/84)



SCALE OF MILES



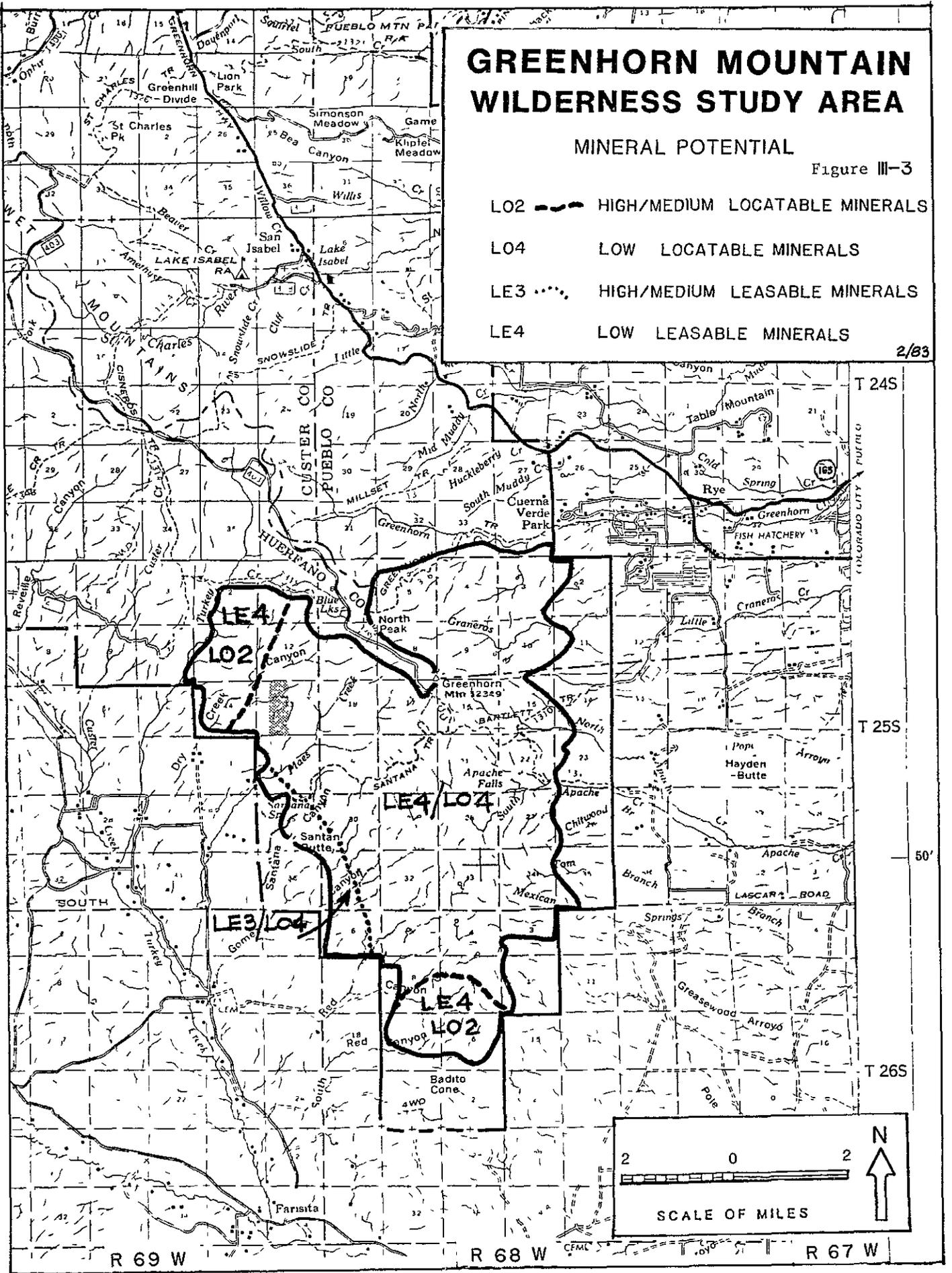
GREENHORN MOUNTAIN WILDERNESS STUDY AREA

MINERAL POTENTIAL

Figure III-3

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

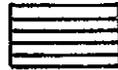
2/83



GREENHORN MOUNTAIN WILDERNESS STUDY AREA

Figure III-4

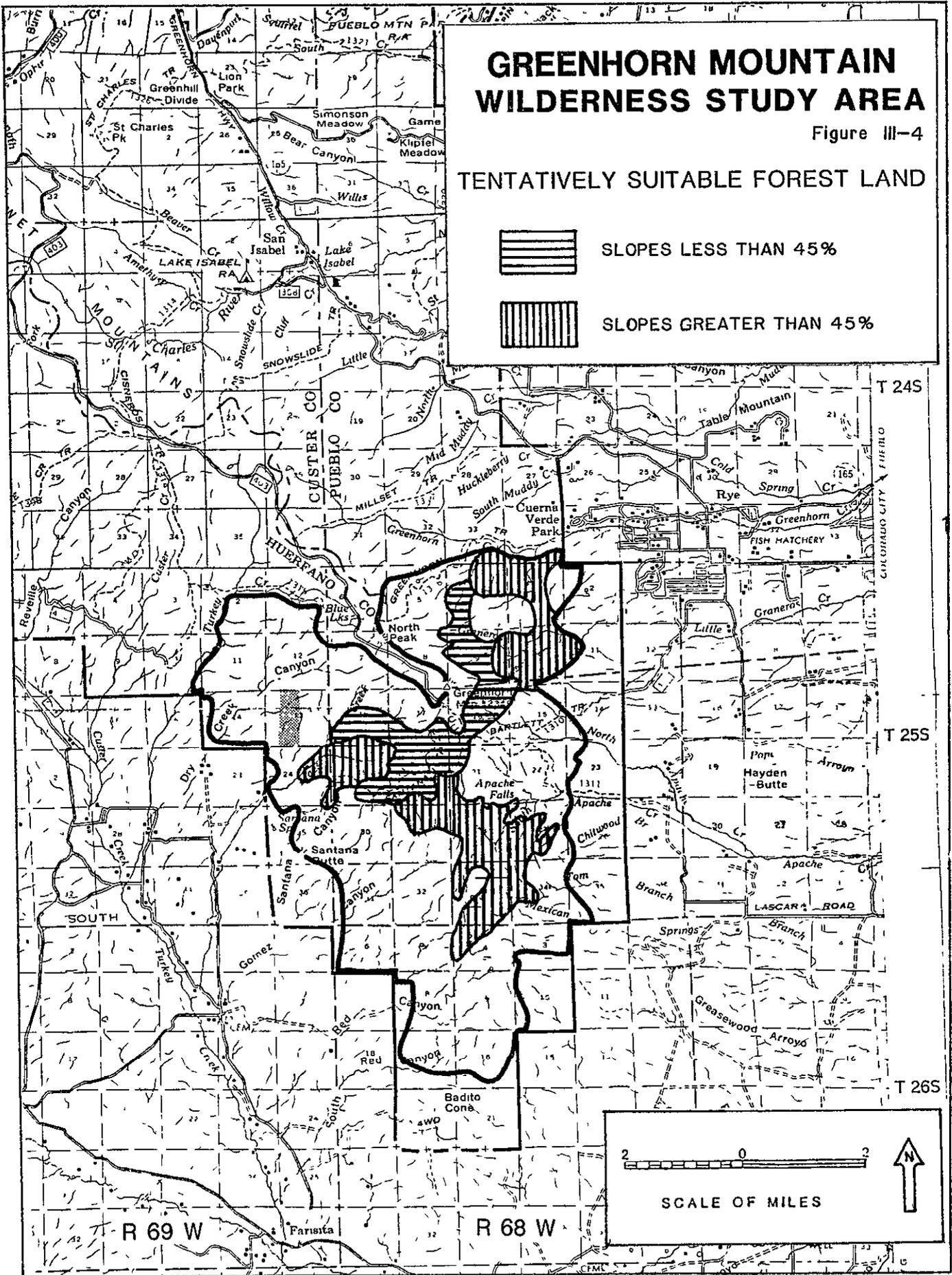
TENTATIVELY SUITABLE FOREST LAND



SLOPES LESS THAN 45%



SLOPES GREATER THAN 45%



The streams in the Wilderness Study Area are classified by the state as Class 1 recreation water, Class 1 cold water aquatic life, municipal water supplies, and agricultural water. Water quality data indicates that the water is within quality standards established by the state.

There are no major water diversions existing or currently planned within the WSA. Potential for developments is very low. The primary value of the streams within the study area is for high water quality, free flowing streams for fisheries, wildlife and recreation purposes. The major uses of the water after it leaves the area are for agricultural and domestic uses.

The current annual water yield is estimated to be about 10,260 (.5 acre-feet/acre) acre-feet per year. This is approximately the average per acre production from the rest of the Forest. There is a potential to increase this yield by 530 acre-feet per year through vegetation management in spruce/fir and lodgepole pine vegetation types above 9,000 feet.

WILDLIFE AND FISH

Most of the wildlife species found on the Pike and San Isabel National Forests also exist in the WSA. Management Indicator Species which commonly occur are pine marten, bighorn sheep, elk, mule deer, northern three-toed woodpecker, and cutthroat trout.

The predominant general habitat types are spruce/fir and Douglas-fir, mountain grassland-alpine tundra, and rocky areas. Also present are aspen, 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	High
Douglas-fir	High
Mt. Grassland-Tundra	Moderate
Rock	Low
Aspen	Moderate
Ponderosa Pine	Low
Oak	Low
Pinon/juniper	Low
Bristlecone Pine	Low

The areas surrounding the study area are typically low elevation habitats such as ponderosa pine, pinon-juniper, oak and other mountain shrublands.

The area rated moderate to high in habitat diversity.

The WSA provides habitat for the greenback cutthroat trout, which is Federally classified as a threatened species. Three miles of current habitat in South Apache Creek and 3 miles of potential habitat in North Apache Creek, as well as the headwaters of these streams are in the WSA. Potential habitat (nest sites) for the peregrine falcon, which is Federally classified as an endangered species, includes about 4,500 acres. Two sites exist along South Apache and Graneros Creeks, and two other sites occur within one-half mile of the boundary along South Muddy and Little Graneros Creeks.

The area provides winter range for deer, elk and bighorn sheep, as shown in Table III-E and Figure III-5. (Acreages overlap as two species 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>
Deer	1.2
Elk	1.5
Bighorn Sheep	2.2

VISUAL RESOURCE

The Greenhorn Mountain WSA is appealing in its landscape character subtype. The alpine area, while small in acreage, is the focal point for the surrounding area. The alpine areas are broadtopped ridges with sparse vegetation in a decomposed granitic soil. Rock outcrops appear throughout the area, often associated along and in stream courses.

Vegetation consists of spruce/fir at the higher elevations, interrupted by numerous grass-covered parks varying in size. The drier lower elevation slopes are covered predominately with ponderosa pine or pinon/juniper. Conifer stands are interspersed with occasional aspen stands in moist areas and along stream bottoms.

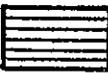
Stream courses generally have a steep gradient with rapids, waterfalls, and boulders adding variety and interest to the scene.

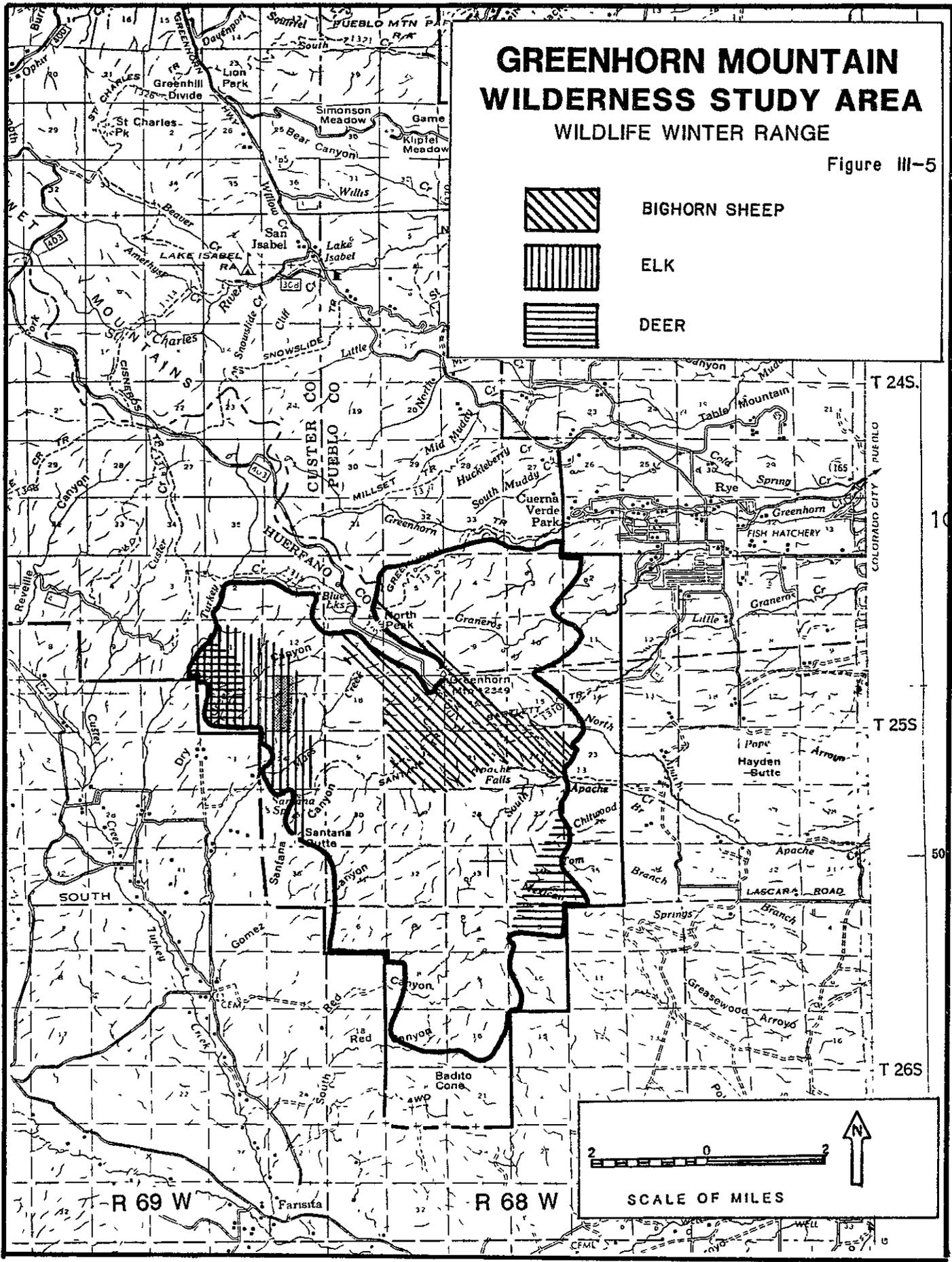
The visual variety class includes 1,500 acres of Class A (outstanding) and 20,830 acres of Class B (common), and is shown on the Variety Class Map, Figure III-6.

GREENHORN MOUNTAIN WILDERNESS STUDY AREA

WILDLIFE WINTER RANGE

Figure III-5

-  BIGHORN SHEEP
-  ELK
-  DEER



RECREATION

The WSA attracts visitors from the Pueblo, Rye and Colorado City areas. Recreation use is relatively low with major activities being hiking and backpacking.

Travel within the area is limited because of the steep rocky terrain. Most of the recreation use is confined to trails or is concentrated at the end of Greenhorn Road near the summit of Greenhorn Mountain.

Current recreation was estimated to be 4,800 visitor days in 1981. This is comprised of 3,600 visitor days for various dispersed nonmotorized activities, 1,500 visitor days for hunting and 1,000 visitor days for fishing.

The Recreation Opportunity Spectrum (ROS) classification shows 21,700 acres (97 percent) in the semiprimitive nonmotorized category and 600 acres in the roaded natural category (3 percent) as shown on Figure III-7. The roaded natural areas receive this classification due to the proximity of roads and other developments near the boundary.

CULTURAL RESOURCES

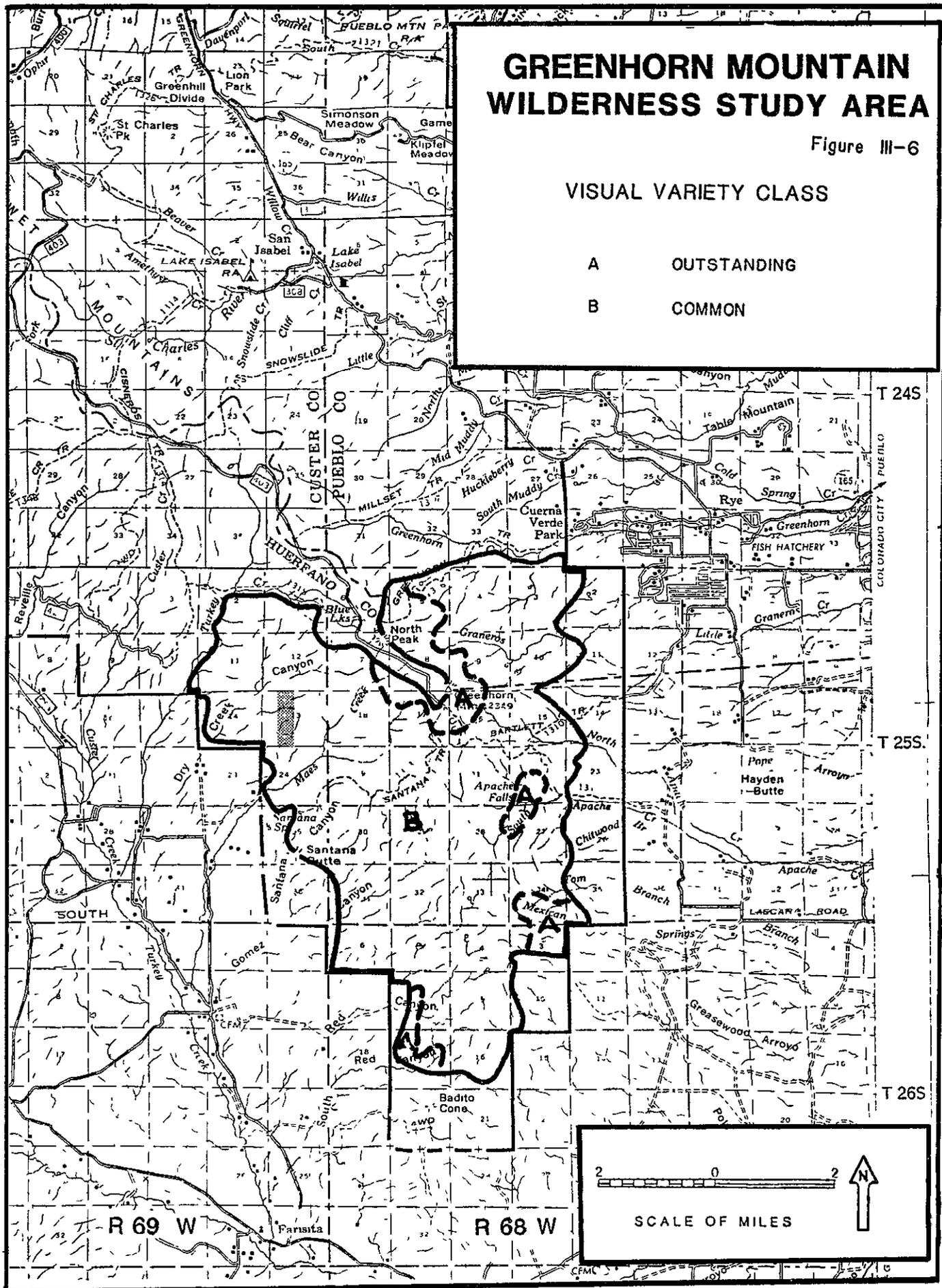
No cultural resource sites have been identified in the WSA, although no intensive surveys have been conducted. Historic use has consisted of hunting, prospecting, and incidental logging. Prehistoric use was probably limited to transient hunting activity. Significant sites are not expected to be found.

GREENHORN MOUNTAIN WILDERNESS STUDY AREA

Figure III-6

VISUAL VARIETY CLASS

- A OUTSTANDING
- B COMMON



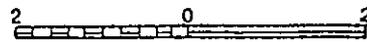
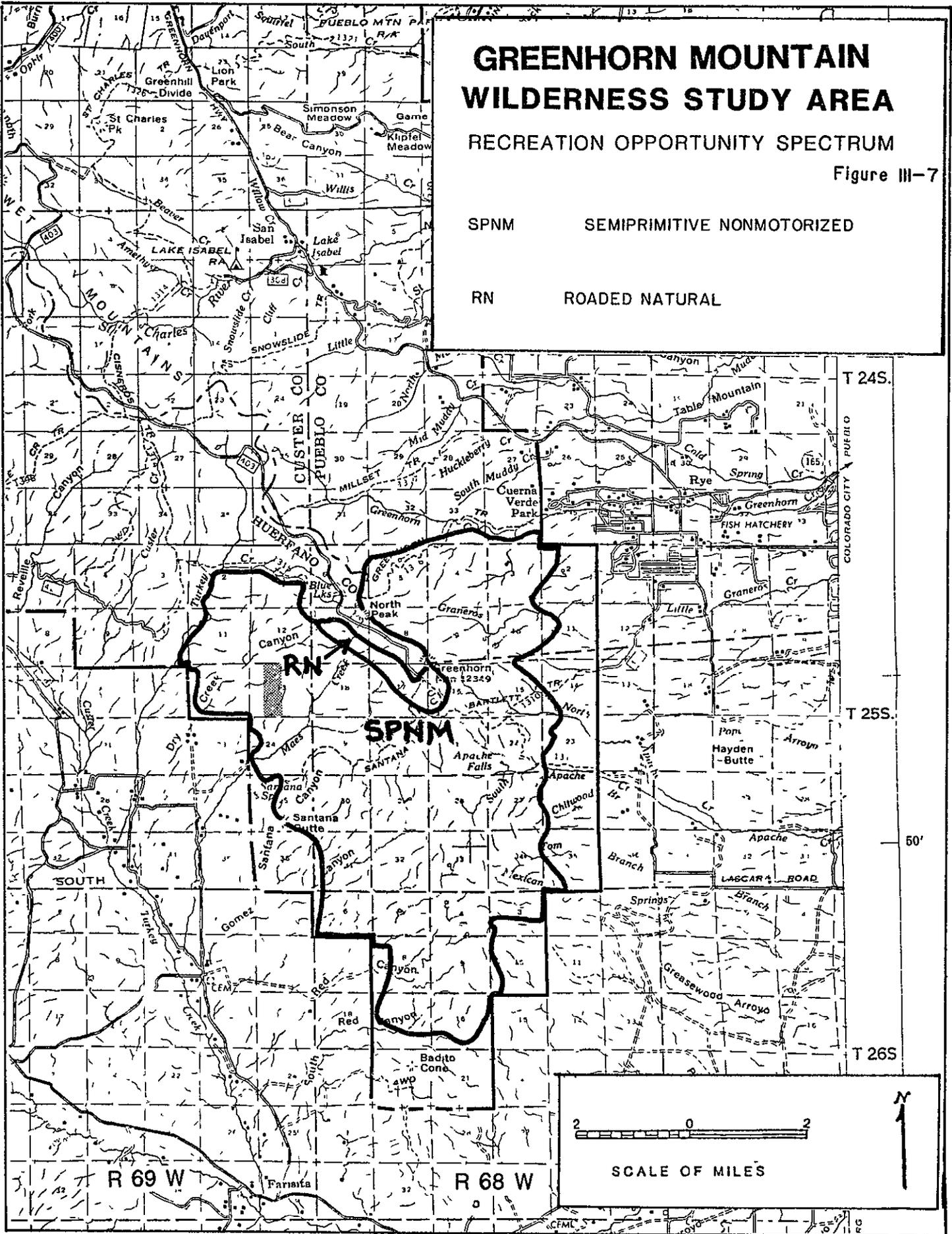
GREENHORN MOUNTAIN WILDERNESS STUDY AREA

RECREATION OPPORTUNITY SPECTRUM

Figure III-7

SPNM SEMIPRIMITIVE NONMOTORIZED

RN ROADED NATURAL



SCALE OF MILES



NON-FEDERAL OWNED LANDS

The study area contains one 160 acre tract of private land near the western boundary in Section 13, T.25S., R.69W., 6th P.M. This parcel is not developed or accessible by road at the present time. See Figure III-8.

TRANSPORTATION

Access to the Greenhorn Mountain study area is provided by the Ophir Creek Road Number 400 and the Greenhorn Mountain Road Number 403 which extends from State Highway 165 south and easterly along the crest of the Wet Mountains to the vicinity of Greenhorn Mountain. The Apache and Bartlett Trails provide access into the area from the eastern Forest boundary. Access to the Bartlett Trail is provided by Road Number 427 from Rye, while the Apache Trail is accessible only by crossing private land and no public access is available. The Santana Trail provides access from the west, across private land which is controlled by the landowner. There are approximately 20 miles of trails within this area.

The area is accessible to the southern Front Range population centers, primarily Pueblo. Driving time from Pueblo to the primary access point on Greenhorn Mountain is about 2 hours. Driving time to the access nearest to the east side at Rye, Colorado, is about 1 hour from Pueblo.

RANGE

The Greenhorn Mountain WSA contains portions of two existing livestock allotments with a permitted use of approximately 687 animal unit months per year. See Figure III-9. There are an additional 951 acres of potential suitable range with an estimated capacity of 236 animal unit months. Total potential capacity in the WSA is estimated to be 923 AUM's.

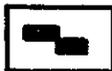
SOCIAL SETTING

The Greenhorn Mountain Wilderness Study Area falls within the Sangre de Cristo - Wet Mountains and the Spanish Peaks Human Resource Units (HRU's). The HRU's are areas of analysis delineated to describe and assist in designing management actions that would be responsive to local issues, conditions, and needs. These HRU's contain the portions of Huerfano and Pueblo Counties in which the WSA occurs.

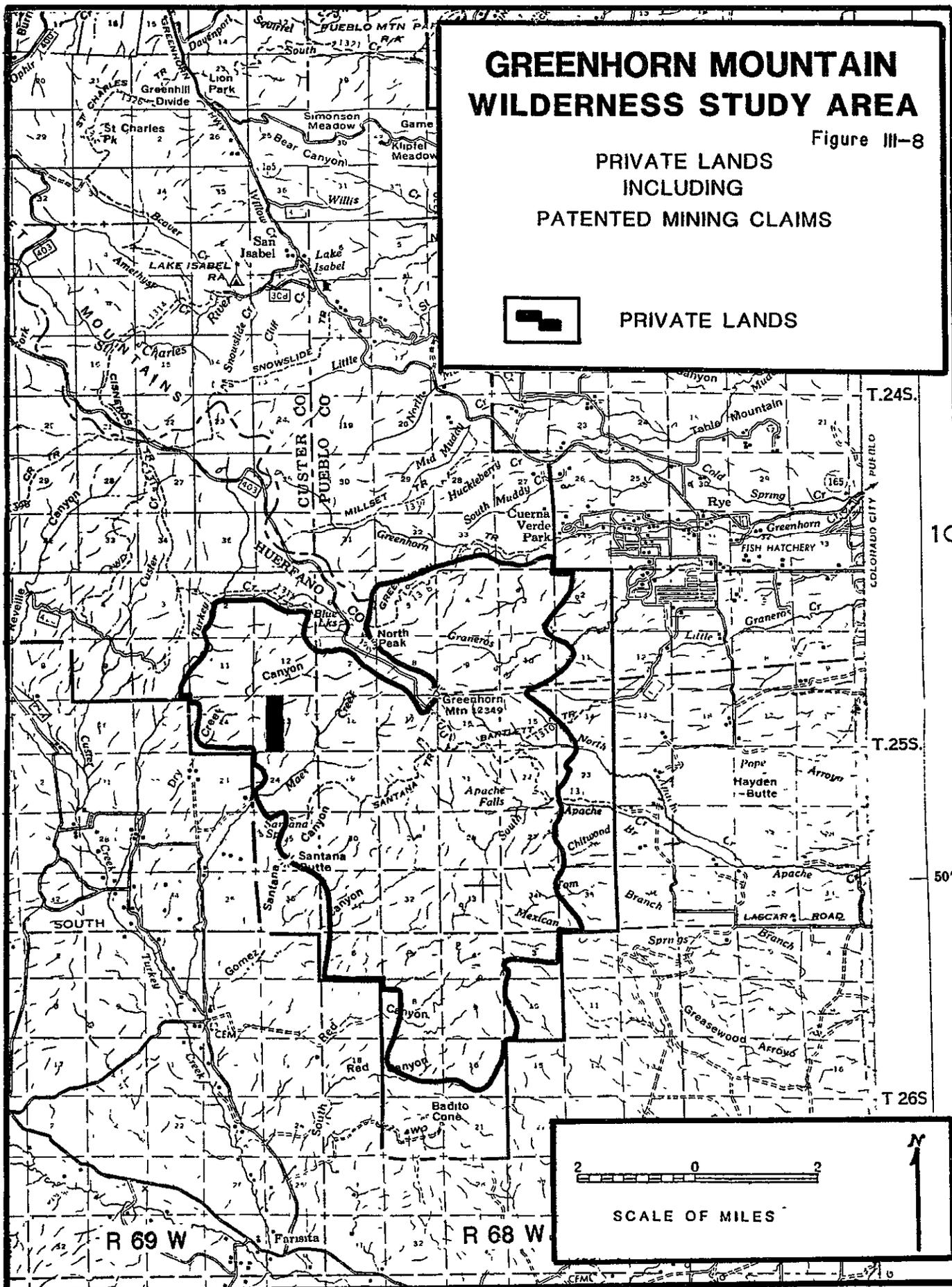
GREENHORN MOUNTAIN WILDERNESS STUDY AREA

Figure III-8

PRIVATE LANDS
INCLUDING
PATENTED MINING CLAIMS



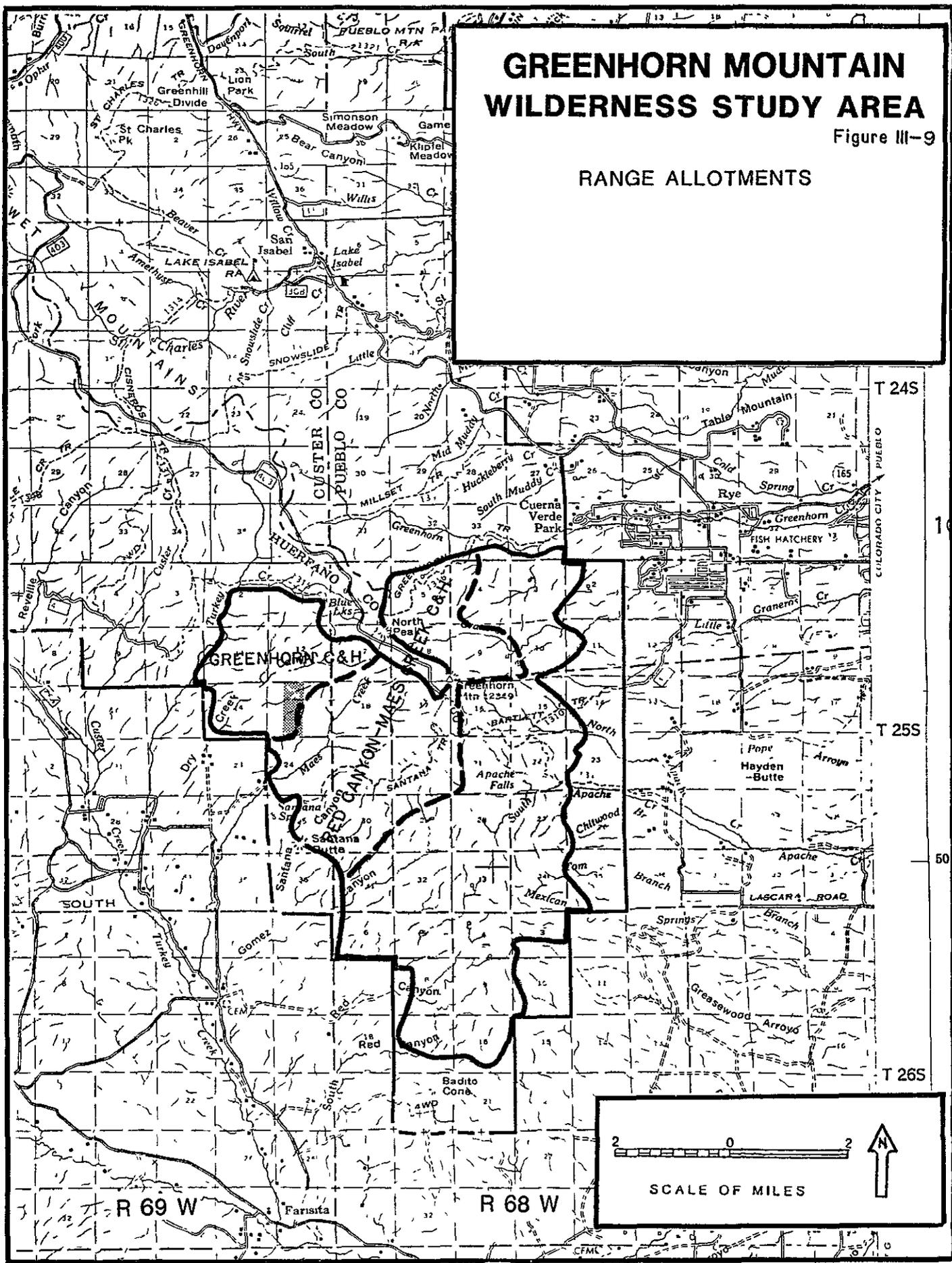
PRIVATE LANDS



GREENHORN MOUNTAIN WILDERNESS STUDY AREA

Figure III-9

RANGE ALLOTMENTS



POPULATION

Only a small portion of the WSA lies within Pueblo County. Pueblo County includes the City of Pueblo and has a population of about 126,000 persons. Work routines are those associated with urban communities and include industrial operations. Pueblo includes the Colorado Fuel and Iron Steel Mill which is the dominant employer in the area. Approximately 33 percent of Pueblo County is of Spanish American origin.

Huerfano County is considerably lower in population with less than 7,000 persons. Its economy is predominantly agriculturally oriented. Spanish Americans make up about 44 percent of the population.

Although employment is currently below State average, income is about average in Pueblo, but lower in Huerfano County.

LIFESTYLES

Lifestyles are urban oriented in Pueblo itself though more rurally oriented in the remainder of the county and in Huerfano County. The people are generally not extravagant and reflect the laborer, manufacturing, and ranching occupations predominant in the area.

ATTITUDES, BELIEFS, AND VALUES

The people are conservative in their attitudes and beliefs and independent in their way of life.

SOCIAL ORGANIZATIONS

The social organization is tied to the major backgrounds and lifestyles of the people. The people take an active interest in local government and community activities. Family and community ties are strong.

POPULATION AND LAND USE

The local populations are not dependent for land uses and resource outputs from this WSA. The WSA is a relatively small area of the overall area of National Forest land in the HRU's.

ECONOMIC SETTING

The Greenhorn Mountain Wilderness Study Area lies predominantly in Huerfano County. Huerfano County has been economically depressed for a number of years. Average annual per capita income is given as \$5159 in the 1980 Census reports compared with a State average of \$7999. The Greenhorn Mountain WSA does not appear to have resources capable of significantly affecting the overall economy of the County.

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

Adopting the suitable alternative would result in a recommendation to add 22,330 acres to the National Wilderness Preservation System.

An unsuitable alternative, if subsequently accepted by Congress, would initially preclude adding the WSA to the National Wilderness Preservation System.

The Greenhorn Mountain Wilderness Study Area has been managed to preserve its wilderness characteristics since the time it was initially inventoried for wilderness potential in RARE-I. Designation of the area as wilderness would result in little or no change in the existing characteristics of the area.

Under the Resource Development Alternative, timber harvest, mineral development and associated road system development could reduce opportunities for primitive recreation, solitude, and affect the natural integrity, apparent naturalness and scenic values which presently characterize the area.

Under the No Action Alternative, mineral resources could be developed. This development, with associated roads, could reduce opportunities for solitude and affect the natural integrity and scenic values. If the mineral resource is developed, any roads needed would be authorized under a special use permit and general public use would be prohibited.

Theoretically, there would be a loss of solitude in the No Action or Resource Development Alternatives since the visitor day use level would potentially be higher than allowed in the Suitable Alternative.

The Unsuitable Alternative (No Action or Resource Development) provides opportunities to protect scenic value by allowing vegetation treatment to reduce risks of insect and disease epidemics.

GEOLOGY AND SOILS

The geology and soils will not be affected directly by either alternative. Increased potential for mineral activity and vegetation management activities with the unsuitable alternative could impact the

soils within the project area. Mitigation measures provided in Forest Direction and Management Area Prescriptions would maintain adverse impacts within acceptable limits. Steep slopes and moderate to high erosion hazard conditions could add to increased costs of mitigation measures.

MINERALS

Under either alternative, until Congress determines otherwise, mineral exploration and development activities under the general mining laws shall be administered according to the laws generally applicable to the National Forest System Lands (Public Law 95-560, Section 105(c)). Only leasing with no surface occupancy stipulations is recommended until such time as Congress acts on the disposition of this area, designates it as wilderness or releases it to multiple-use management. If it is released for multiple-use management, leasing recommendations that apply on non-classified NFS lands will apply.

Under the suitable alternative, if designated wilderness the WSA would be managed in accordance with the provisions of the Wilderness Act of 1964. Subject to valid existing rights, effective January 1, 1984, the minerals in wilderness were withdrawn from appropriation under the U.S. Mining Laws and from disposition under the mineral leasing laws. (Wilderness Act of September 3, 1964, Section 4 (d)(3).) Therefore, the effect of a suitable recommendation may be to limit the availability of mineral resources in the WSA.

Under the unsuitable alternative, the mining laws and laws pertaining to mineral leasing will apply unless otherwise determined by Congress. Surface management would be as prescribed in the Forest Plan. Table IV-A illustrates the area subject to mineral recommendations under suitable and unsuitable alternatives. Recommendations with appropriate stipulations are shown in the Forest Land and Resource Management Plan.

TABLE IV-A

MINERAL LEASING AREA

<u>Category</u>	<u>Alternative</u>	
	<u>Suitable</u>	<u>Unsuitable</u>
Geophysical Investigation	8,921 Acres	22,300 Acres
Leasable	-0- Acres	22,300 Acres
No leasing	22,300 Acres	-0-

VEGETATION

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

Under the unsuitable (Resource Development) alternative, the vegetation could be altered on 50 percent of the area to provide wood fiber, increase water yield, and to maintain and improve wildlife habitat.

TIMBER

Implementation of the suitable alternative would result in the reclassification of the timber resource to the reserved category and make it unavailable for harvest. Timber stands otherwise brought under management would tend to become overmature. Occurrence of insects and disease would tend to increase.

Under the unsuitable (Resource Development) alternative, it is likely that the more accessible forest portion of the WSA would be harvested. This could amount to a long-term sustained yield of up to 0.9 MMBF per year 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, and/or low volumes.

PROTECTION

Air Quality

There is no evidence to indicate that either alternative would have major effects on the WSA's air quality, Class II designation, or air quality protection requirements.

Fire

Selection of the suitable alternative would have little effect on the frequency of wildfire in the WSA. The natural accumulation of ground fuels would tend to increase, however. Restrictions on transportation would impede travel on initial attack situations very little because most of the areas are inaccessible to motorized travel due to adverse terrain.

The Resource Development alternative would provide opportunity to manage vegetation for timber production and wildlife and consequently reduce accumulations of fuels. Fires could be prescribed where applicable for those activities.

Forest Pest Management

Under the suitable alternative, opportunities using an integrated approach to pest management are limited to control of insect and disease outbreaks in those situations where nonwilderness values on adjacent lands are threatened. Occurrence of insect and disease outbreaks tend to increase as tree stands become increasingly older and overmature.

The unsuitable alternative would provide for vegetation management producing healthy stands less susceptible to insect and disease infestation and buildup.

WATER

Water Quantity

Wilderness designation under the suitable alternative would preclude future water yield improvement activities in the Greenhorn Mountain WSA. The water yield would continue to be about 10,260 acre-feet per year subject to variations caused by natural ecological succession. Most potential alpine snowpack management activities, such as snowfences or similar structures, would be incompatible with the wilderness character.

Under the unsuitable alternative, water resources would continue to be managed under the direction of the Forest Land and Resource Management Plan. Limited water yield improvement activities through vegetation management might occur, which could increase water yield by 530 acre-feet from the present yield of 10,260 acre-feet to 10,790 acre-feet per year.

Water Uses and Rights

A suitable or unsuitable recommendation will not affect any existing or proposed water uses, or rights.

There are no currently identified water development needs for livestock grazing and no proposed water storage or diversion projects in the WSA.

WILDLIFE AND FISH

The effects of either the suitable or unsuitable alternatives on wildlife include both beneficial and adverse effects.

If the amount of human use increases dramatically under either alternative, impacts on wildlife solitude 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 either alternative.

Designation as wilderness will preclude some of man's activities such as timber harvest. Prescribed burning from a planned ignition or timber harvest would not be allowed if the area were designated as wilderness. Any vegetation changes in a wilderness would have to result from natural

causes such as fires from unplanned ignitions or insect and disease caused mortality.

Under the unsuitable alternative, with resource development, wildlife habitat management by prescribed burning or vegetation management by timber harvest to maintain or improve wildlife habitat on 2,700 acres would be possible.

The suitable alternative would not contribute to State DOW goals for big game habitat improvement, but would provide some measure of protection to potential peregrine falcon habitat and existing and potential Greenback cutthroat trout habitat.

VISUAL RESOURCES

The suitable alternative would place all of the area under a visual quality objective of preservation or retention.

Under the unsuitable alternative, visual quality objectives would be in accordance with the management prescriptions to be applied under the Forest Plan. Modification of the existing visual character of the WSA might occur under some intensive use prescriptions.

RECREATION

Under the suitable for wilderness alternative, increased use may have to be controlled to meet user expectations for wilderness recreation experiences.

Current use is at 13 percent of the wilderness capacity of 37,600 RVD's. Under the unsuitable alternative, the study area could continue to be managed for semiprimitive nonmotorized recreation. The area will accommodate approximately 45,500 recreation visitor days (RVD) annually while still providing for multiple resource values.

NON-FEDERAL OWNED LANDS

Selection of the suitable alternative would place one 160 acre tract of private land within the wilderness. This could be eliminated by a boundary adjustment, or acquisition to avoid future conflicts should the owner decide to develop the property.

Since December 31, 1983, under provisions of the 1964 Wilderness Act, patents granted for claims in wilderness will be minerals only, unless discovery can be proved to have been made before the date of the Wilderness Act for lands which were designated as wilderness then, or before the dates of later wilderness designations when such lands are involved. Operations on patented claims within National Forest wilderness, where only the mineral rights are patented, are thus subject to direct environmental protection controls by the Forest Service and also by State agencies under applicable State laws and regulations.

• The unsuitable alternative will have no effects on non-National Forest lands.

TRANSPORTATION

The existing transportation system will remain essentially unchanged under the suitable alternative. Project roads where necessary and appropriate by law for mining access could still be located and used, although general public use would be prohibited.

With the Resource Development alternative, 50 percent of the WSA could be made accessible by vehicles for vegetation management to provide fuelwood, increase water yield, and improve wildlife habitat. These access routes could be closed to public recreation use when not needed for resource management activities to retain nonmotorized opportunities.

RANGE

Public Law 96-560, Section 108, specifically relates to grazing regulations applicable to National Forest wilderness. Grazing is permitted in wilderness and where established, will continue to be allowed.

Livestock use or management activities will not change significantly with either alternative. Some effects will occur due to limitations on new use under the suitable alternative. Currently, there are no non-structural range improvements planned.

SOCIAL EFFECT

Either alternative would have minimal effect on the social and economic setting. Neither the suitable nor unsuitable alternative is expected to have a significant impact on the population, employment, or income of the local area.

ECONOMIC EFFECTS

As displayed in Table IV-B, resource values were assigned to timber, water, range, and recreation outputs. Wildlife benefits are included in the recreation visitor day 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.

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. Values are lower using the 7 1/8 percent discount rate because more emphasis is placed on immediate use of resources rather than future uses.

TABLE IV-B

ECONOMIC EFFICIENCY ANALYSIS OF GREENHORN MOUNTAIN WILDERNESS STUDY AREA
 (ALL VALUES ARE IN MILLIONS OF REAL 1978 DOLLARS,
 DISCOUNTED AT 4 PERCENT AND 7 1/8 PERCENT)

<u>Resource</u> <u>Outputs</u>	<u>Suitable</u>	<u>Unsuitable</u>	<u>Current</u> <u>Management</u>
1. Timber (MMBF)	0	0.6	0
2. Water Yield (MAF)	0.3	10.8	10.3
3. Rec-Wild. (MRVD)	37.6	0	0
4. Rec-Unsuit Disp. (MRVD)	0	45.5	45.5
5. Rec-Dev. (MRVD)	0	0	0
6. Range (MAUM)	.9	.9	0.9
<u>Discounted Benefits</u> <u>4% (MM\$)</u>			
1. Timber	0	0.3	0
2. Water Incr.	0	0.2	0
3. Rec-Wild.	6.5	0	0
4. Rec-Nonwild.	0	5.0	5.0
5. Range	<u>0.2</u>	<u>0.2</u>	<u>0.2</u>
6. TOTAL	<u>6.7</u>	<u>5.7</u>	<u>5.2</u>
<u>Discounted Costs</u> <u>4% (MM\$)</u>			
1. Operation & maint.	0.3	1.0	0.7
2. Gen. Admin.	0.1	0.2	0.1
3. Capitol Invest.	<u>0</u>	<u>0</u>	<u>0</u>
4. TOTAL (PVC)	<u>0.4</u>	<u>1.2</u>	<u>0.8</u>
<u>Economic Measures</u>			
1. Total Discounted Benefits (PVB)	6.7	5.7	5.2
2. Total Discounted Costs (PVC)	0.4	1.2	0.8
3. Present Net Value	6.3	4.5	4.4
4. Benefit/Cost Ratio	16.75	4.75	6.5

TABLE IV-B (Continued)

ECONOMIC EFFICIENCY ANALYSIS OF GREENHORN MOUNTAIN WILDERNESS STUDY AREA
 (ALL VALUES ARE IN MILLIONS OF REAL 1978 DOLLARS,
 DISCOUNTED AT 4 PERCENT AND 7 1/8 PERCENT)

	<u>Suitable</u>	<u>Unsuitable</u>	<u>Current Management</u>
<u>Discounted Benefits</u> <u>7 1/8% (MM\$)</u>			
1. Timber	0	0.2	0
2. Water Incr.	0	0.1	0
3. Rec-Wild.	4.1	0	0
4. Rec-Nonwild.	0	3.1	3.1
5. Range	<u>0.1</u>	<u>0.1</u>	<u>0.1</u>
6. TOTAL	4.2	3.5	3.2
<u>Discounted Costs</u> <u>7 1/8% (MM\$)</u>			
1. Operation & Maint.	0.2	0.6	0.5
2. Gen. Admn.	0	0.1	0.1
3. Capitol Invest.	<u>0</u>	<u>0</u>	<u>0</u>
4. TOTAL (PVC)	0.2	0.7	0.6
<u>Economic Measures</u> <u>(7 1/8%)</u>			
1. Total Discounted Benefits (PVB)	4.2	3.5	3.2
2. Total Discounted Costs (PVC)	0.2	0.7	0.6
3. Present Net Value	4.0	2.8	2.6
4. Benefit/Cost Ratio	21.0	5.0	5.3

Resource values used in the analysis are:

<u>Resource</u>	<u>Units</u>	<u>Values/Unit(\$)</u>
Timber	MCF	78.00
Water	Acre-Foot	19.70
Recreation (Wilderness)	RVD	8.00
Recreation (Nonwilderness)	RVD	5.00
Range	AUM	10.50

WILDERNESS SUITABILITY OR UNSUITABILITY

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.

WILDERNESS CAPABILITY

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.

Both physical characteristics and manageability of the area were evaluated. The Wilderness Attribute Rating System (WARS) for Greenhorn Mountain described in Chapter III, indicates a rating of 19 which compares to the average rating of 22 in RARE II. This rating was reviewed for this report and was not changed.

Manageability was evaluated using the following criteria:

Forest Service 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 can be managed to maintain the wilderness character. Surface disturbances relating to mineral development would be controlled by 36 CFR 228 and the Forest Plan prescriptions.

The Greenhorn WSA is manageable as wilderness. Boundaries are located so that conflicts with outside uses can be avoided. Boundaries can be generally described and located so they are recognizable on the ground, conform to topographic features, and provide adequate public access.

Manageability may be affected because the minerals potential may create needs for access and activities not compatible with the maintenance of a wilderness setting. Approximately 3 percent of the area would be available for surface occupancy under the mineral leasing recommendation with the suitable alternative.

Size and shape of the area.

The WSA contains 22,330 acres and is relatively compact. The boundary of the area is determined by a road corridor and past non-conforming uses in most places rather than by topographic features.

Location relative to external influences.

There are no known current or anticipated external impacts that are significant.

The boundary provides opportunities for transportation access and trailhead facilities.

WILDERNESS AVAILABILITY

National Forest System lands determined to meet wilderness capability requirements are 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.

Existing Constraints and Encumbrances.

All land within the Greenhorn Mountain WSA is National Forest System land except one private land tract of 160 acres. This is not significant as it can be excluded by a boundary adjustment and it has a low potential for adverse effects on wilderness values.

Unpatented mining claims may be affected by a wilderness designation. Activities on these unpatented claims are governed by 36 CFR 228, Subpart A regulations and Forest Plan prescriptions, but surface impacts and access needs could reduce wilderness values.

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 with less area available for leasing than under a nonwilderness allocation. Mineral exploration and development under the leasing recommendations could affect wilderness values on about 3 percent of the WSA.

Incompatible Uses.

The boundary has been located to avoid conflicts with uses not compatible with wilderness.

Effect of Wilderness Designation and Management on Adjacent Lands.

There are no anticipated adverse effects of wilderness designation on the management of adjacent lands. The eastern boundary was located to consider adverse effects of fire management activities on adjacent private lands.

A significant local concern for this area surfaced during RARE II. The concern was with fire and insect and disease protection and the potential for their spread to adjacent lands and private property. The WSA shows evidence of large fires in the past and has a recent history to confirm this potential. The potential for Forest pests epidemics is only moderate however. The location of the study area boundary as established in RARE II about a mile from National Forest Boundary offers adjoining property adequate protection and excluded otherwise unsuitable lands. As a result those concerns were for the most part resolved in RARE II.

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.

Resource values in the Greenhorn Mountain WSA include:

- Potential mineral reserves.
- The potential to provide the opportunity for a wilderness recreation experience for 628 people at one time (PAOT) with an annual capacity of 37,639 recreation visitor days.
- A degree of protection to natural ecosystems, wildlife, water quality, and other resources.

Past activity and estimate potential for mineral resources indicates that the area could contain commercial mineral reserves.

Wilderness designation would withdraw the area from mineral entry and leasing except for valid claims prior to December 31, 1983. Any mineral discoveries after that date would be foregone. The exercise of these rights may result in activities not compatible with maintenance of the wilderness character. A nonwilderness recommendation will result in the mineral resources being managed the same as on other National Forest System lands.

The effect of the suitable alternative on mineral leasing would be to reduce the area available for surface occupancy from 22,300 acres to 697 acres. An additional 8,224 acres, on the perimeter, would be available for leasing without surface occupancy with the suitable alternative.

The majority of the study area has a low resource potential for locatable minerals, except for one small area where studies indicate as having a low to moderate mineral resource potential. There is no known geological evidence for leasable mineral resource potential. (USGS, OF 83-473).

The suitable alternative would withdraw the area from all forms of mineral activities under the mining and leasing laws subject to valid existing rights. The unsuitable alternative would allow exploration with appropriate stipulations.

The capacity for dispersed recreation use will be slightly less under the suitable alternative to maintain wilderness attributes than it will be with the unsuitable alternative. However, the capacity is limited under either alternative by access and the carrying capacity characteristics to maintain the desired opportunity settings.

The current nonmotorized recreation opportunities would continue under the suitable alternative and would generally continue under the unsuitable alternative, depending upon the selected management prescriptions to be applied.

The Greenhorn Mountain WSA has the capability for increasing water yield by 600 acre-feet per year. This potential water yield increase is important for domestic and agricultural users, both locally and downstream. However, the steep slopes and many rocky outcrops severely limit vegetation management opportunities, for water yield increases and greatly increase the cost of intensive management activities.

The selection of the suitable alternative would preclude the management of the capable forest land. The unsuitable alternative would allow some utilization of this resource. About 3,800 acres of tentatively suitable forest land with slopes less than 45 percent would be available for harvest with an annual long term sustained yield of 0.6 MMBF.

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

Through the land management planning process, 2,700 acres of deer and elk winter range have been identified. Much of this habitat needs improvement and maintenance to meet projected wildlife needs, but the predominance of steep slopes limit the feasibility for improvement.

Effects of either alternative would be minimal on the social and economic situation in the affected HRU's. Potential values for resource outputs are relatively low. Local communities are not directly dependent on the WSA for either wilderness or nonwilderness associated benefits.

WILDERNESS NEED

There must be clear evidence of current or future public need for additional designated wilderness in the general area involved.

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 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.

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

- Visitors to designated wilderness will increase.
- Some undeveloped lands provide opportunities for 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.

Wilderness acreage was increased to 589,340 acres in this vicinity with passage of the Colorado Wilderness Act. However, wilderness is not immediately available to the population of southeastern Colorado. The Collegiate Peaks, Lost Creek and Great Sand Dunes Wildernesses are both about 2½ hours plus driving time from Pueblo, whereas, the eastern boundary of this WSA is about 1½ hours driving time from Pueblo. The suitable alternative will help provide for more quickly available wilderness opportunities.

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

The Pike and San Isabel National Forests contain 257,08 acres of wilderness. In addition, other wildernesses with approximately 2 million acres are within a 150 mile radius of this WSA. However, wilderness is not readily available to the population of southeastern Colorado. The Collegiate Peaks, Great Sand Dunes or Lost Creek Wildernesses are about 2½ or more hours driving time from Pueblo. The eastern boundary of this WSA is about 1 hour driving time from Pueblo. The WSA would improve geographic distribution of units of the National Wilderness Preservation System in southeastern Colorado area.

Visitor use information is summarized below:

TABLE IV-C
WILDERNESS USE INFORMATION 1981

Name of Wilderness	USE (MRVD's)	AREA (acres)	RVD/AC/YR
<u>Colorado</u>			
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	45.5	74,250	0.61
Maroon Bells	211.3	174,060	1.21
Eagles Nest	78.0	133,688	0.58
Raggeds	19.0	68,000	0.28
West Elk	101.5	194,412	0.53
Big Blue	53.5	97,700	0.58
La Garita	32.3	108,486	0.30
Weminuche	255.4	463,224	0.55
South San Juan	79.5	133,463	0.59
<u>New Mexico</u>			
Chama River Canyon	5.6	50,260	0.11
Cruces Basin	21.6	18,000	1.20
Latir Peak	1.5	20,000	0.09
Pecos	198.3	223,333	0.88
South Pedro Park	50.2	41,132	1.22

This use information indicates that most existing wildernesses are generally receiving moderate levels of use.

Trends indicate increasing use in wilderness on the Pike and San Isabel National Forests may be expected. The added attraction of wilderness designation is expected to shift patterns of use from nearby dispersed recreation use areas to the designated wildernesses to a small degree, although major impacts are not anticipated based on initial experience from the wilderness established by the Colorado Wilderness Act. The possible addition to the National Wilderness Preservation System of other Wilderness Study Areas, both Forest Service and Bureau of Land

Management, would potentially meet a portion of the demand for additional Wilderness in the vicinity.

Lands' Ability to Provide Opportunities for Unconfined Outdoor Recreation Experiences

While the Greenhorn Mountain WSA has capacity to provide opportunities for unconfined outdoor recreation experiences, it is recognized that this capacity is not in short supply in the surrounding area, and is not dependent on wilderness designation.

Approximately 248,730 acres of semiprimitive nonmotorized and 537,100 acres of semiprimitive motorized recreation opportunity classes exist on the Pike and San Isabel National Forests outside of wilderness and wilderness study areas. Neither alternative will affect the relative supply of either opportunity.

The Statewide Comprehensive Outdoor Recreation Plan for Region 7 recommends the Forest Service place increased priority on picnicking and four-wheel drive opportunities. However, due to the generally steep terrain, this WSA is not conducive to providing for this need. There is no apparent conflict between either alternative and the Huerfano and Pueblo County Recreation Plan goals.

Ability of Biotic Species to Compete with People and Projects

No threatened or endangered plant species are known to exist in the WSA. Management practices can protect the plant communities against unacceptable impacts with or without wilderness designation. Management practices employed to protect the Greenback cutthroat trout are employed in either alternative and includes state regulation of fishing.

The Need to Provide Sanctuary for Species that have a Demonstrated Inability to Survive in Less Primitive Surroundings

Primitive and low use surroundings can add a level of security for several WSA wildlife species. The success of any peregrine falcon reintroduction, elk calving and wintering, and Greenback cutthroat trout management will depend on managed public use. Formal wilderness designation is not essential to maintain a primitive or semiprimitive setting.

Provide for Preservation of Unique Landform Types and Ecosystems

There are no unique landforms or ecosystems in Greenhorn Mountain WSA that are not represented in other wilderness within the National Wilderness Preservation System, nor within Wilderness or proposed Wilderness in the vicinity. (See Table IV-D)

TABLE IV-D

REPRESENTATIVE ECOSYSTEMS AND LANDFORMS IN
THE GREENHORN MOUNTAIN WSA AND NEARBY
WILDERNESSES OR WILDERNESS STUDY AREAS

<u>Ecosystems</u>	<u>Greenhorn Mtn. WSA</u>	<u>Sangre de Cristo WSA</u>	<u>Lost Creek Wilderness</u>	<u>Collegiate Peaks Wilderness</u>
Alpine	Low	High	Mod	High
Spruce/fir	Mod	High	High	High
Douglas-fir	Mod	High	High	Mod
Ponderosa pine	Low	Mod	High	Low
Aspen	Mod	High	High	High
Shrub Oak	Low	Mod	None	None
Pinon/Juniper	Low	Low	None	None
Mtn. grass Meadows	Low	Mod	High	High
<u>Landforms</u>				
Peaks over 13,000 ft. elevation	None	High	Low	High
Rock outcrops, Talus	High	High	High	High
Special Geologic Attraction	None	Low	High	Low
Steep slopes Sharp Canyons	High	High	High	High

Key - Relative Abundance
High - Abundant
Moderate (Mod) - Common
Low - Infrequent

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 nonwilderness purposes, will maintain or enhance long term productivity. However, the productivity will be for partially different resources. The short term 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 short term use for nonwilderness purposes will maintain and enhance the long term productivity for water yield, wildlife habitat diversity, and insect and disease control through the maintenance of a healthy forest cover. However, even under a non-wilderness recommendation, some of the land within the WSA will remain in its present condition and will be managed for semiprimitive, non-motorized recreation purposes.

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

A suitable recommendation for designation of this area as wilderness is not viewed as an irreversible commitment of resources since Congress has the authority to designate wilderness and also has the authority to declassify wilderness, should this be needed.

The removal of mineral resources is viewed as an irreversible and irretrievable commitment only because these are non-renewable resources. At the present time, the wilderness study designation (Public Law 96-560) provides that minerals activities within this WSA will be governed by the same consideration as on other National Forest lands. Under a suitable recommendation, if adopted, the WSA will be withdrawn from mineral entry and mineral leasing, subject to valid existing rights. 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. Loss of potential revenues from mineral leasing under the suitable alternative is an irretrievable loss though not irreversible. In addition, there would be an irretrievable loss of timber production because of lost opportunity to harvest.

Under the unsuitable alternative, the existing situation would continue unless Congress determines otherwise.

ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED

Suitable and Partially Suitable Alternatives

There may be an increase in the cost of mineral development for valid existing rights because of the possible need for using aerial access and the need for more elaborate mitigation measures to restore disturbed areas to a near natural condition.

There will be a decrease in the likelihood of a significant mineral discovery and development because the area will be withdrawn from all forms of activity under the general mining and the leasing laws subject to valid existing rights.

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

Unsuitable Alternative

There may be an eventual irreversible loss of wilderness character through the incursion of mining and other road supported resource activities in the area.

Conflicts with Other Government Agency Plans

There are no known direct conflicts with plans of other government agencies under any alternative. Responses of other agencies are found in Chapter VI of the FEIS for the Forest Land and Resource Management Plan.

WILDERNESS STUDY AREA REPORT
BUFFALO PEAKS
PIKE AND SAN ISABEL NATIONAL FORESTS
CHAFFEE, LAKE, AND PARK COUNTIES
COLORADO

CHAPTER I

INTRODUCTION AND INDEX TO
FOREST PLAN EIS

The information presented in this Buffalo Peaks Wilderness Study Area section of Appendix C was used to provide the data that appears in the main body of the Final Environmental Impact Statement (FEIS) for the Pike and San Isabel National Forests Land and Resource Management Plan (Forest Plan). For your convenience, the following index indicates where in the Forest Plan FEIS certain information about the WSA is displayed.

<u>Forest Plan FEIS Chapter Title</u>	<u>Chapter-Page</u>
Purpose and Need	I-2
Alternatives Including the Proposed Action	II-28
Affected Environment	III-70
Environmental Consequences (wilderness suitability or unsuitability)	IV-33
Consultation with Others	VI-1

CHAPTER II

ALTERNATIVES

OVERVIEW

The evaluation of the Buffalo Peaks Wilderness Study Area was mandated by Congress in the Colorado Wilderness Act (Public Law 96-560) of December 22, 1980. The WSA will be managed to preserve the existing wilderness character until Congress acts on the proposal.

The alternatives in the Final Environmental Impact Statement for the Pike and San Isabel National Forests Land and Resources Management Plan describe management proposals for the four alternatives detailed in this EIS

ALTERNATIVES CONSIDERED IN DETAIL

Alternatives, including the matching Forest Plan FEIS Alternatives are displayed in Figure II-1 and Table II-A.

SUITABLE FOR WILDERNESS DESIGNATION ALTERNATIVE - ALTERNATIVE 1

This alternative is the same as Alternative C of the Forest Plan FEIS.

This alternative would result in a recommendation to Congress that the 56,950 acre Buffalo Peaks Wilderness Study Area is suitable for inclusion in the National Wilderness Preservation System

The WSA would be managed for semiprimitive wilderness opportunities in an essentially natural condition under management area Prescription 8C, as shown in Table II-A.

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.

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 result in a recommendation to Congress that about 36,060 acres of the Buffalo Peaks Wilderness Study Area is suitable for inclusion in the National Wilderness Preservation System. It would

further recommend that about 20,890 acres are unsuitable for wilderness designation. (See Figure II-2).

Under this alternative, all of the 36,060 acres recommended for wilderness would be managed for primitive wilderness opportunities under Management Area Prescription 8B. The other portions of the Wilderness Study Area would be managed under various non-wilderness management prescriptions, including 400 acres under Management Area Prescription 3A, 1,300 acres under Prescription 4B, 1,800 acres under Prescription 4D, 10,640 acres under Prescription 5B, 5,450 acres under Prescription 6B, 800 acres under Prescription 2B, and 3,100 acres under Prescription 9B.

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 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. Season 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 wildlife 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 4D, the emphasis is on maintaining and improving aspen sites. Aspen is managed to produce wildlife habitat, wood products, visual quality, and plant and animal diversity. Both commercial and noncommercial treatments are applied. Temporary or seasonal closures may be used to prevent disturbance to wildlife or to improve hunting and fishing quality.

In areas managed under Prescription 5B, emphasis is on providing forage and cover on winter ranges for deer, elk, and bighorn sheep. 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.

In areas managed under Prescription 6B, emphasis is on livestock grazing. Range condition is at or above satisfactory level. Range condition is maintained through vegetation treatments, livestock management, and regulation of other resource uses. Conflicts between livestock and big game are resolved in favor of livestock.

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.

Detailed descriptions of the Management Areas Prescriptions are found in Chapter III of the Forest Plan.

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

This alternative is the same as Alternative B in the Forest Plan FEIS.

This alternative would result in a recommendation to Congress that the Buffalo Peaks Wilderness Study Area is unsuitable for inclusion in the National Wilderness Preservation System.

Under this alternative, 1,050 acres would be managed under Management Area Prescription 2B, 29,186 acres under Prescription 4B, 23,014 acres under Prescription 5B, 2,800 acres under Prescription 6B, and 900 acres under Prescription 7A. Except for Prescription 7A, summary descriptions of these prescriptions are listed under Alternative 2. Prescription 7A is described in the next paragraph.

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.

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

Like Alternative 3, Alternative 4 would result in a recommendation that all of the Buffalo Peaks Wilderness Study Area is unsuitable for inclusion in the National Wilderness Preservation System. Alternative 4 is the same as Alternative D of the Forest Plan FEIS. It tends to emphasize resource development to produce commodity outputs. Under this alternative, 1,500 acres would be managed under Management Area Prescription 2B, 18,400 acres under Prescription 4B, 13,500 acres under Prescription 5B, 22,650 acres under Prescription 6B, and 900 acres under Prescription 7A. Summary descriptions of these prescriptions are listed under Alternatives 2 and 3.

A variation of Alternative 4 which places less emphasis on livestock grazing has also been considered. This variation is the same as Alternative E of the Forest Plan FEIS. Under this alternative, 800 acres would be managed under Management Area Prescription 2B, 30,450 acres under Prescription 4B, 9,300 acres under Prescription 5B, 15,500 acres under Prescription 6B, and 900 acres under Prescription 7A.

SUMMARY OF ENVIRONMENTAL AND ADMINISTRATIVE CONSEQUENCES

Management proposals were described in the Forest Plan EIS to include several resource development alternatives as well as the wilderness management alternative. These alternatives are summarized as follows. Alternative A is the proposed action.

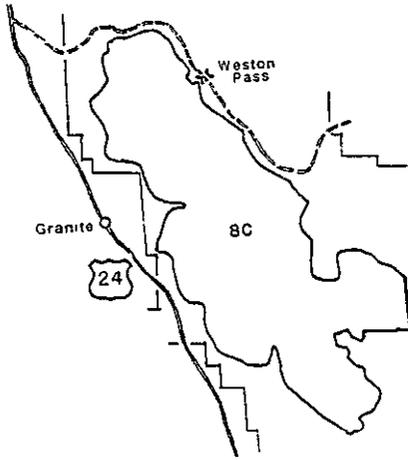
TABLE II-A
FOREST PLAN FEIS ALTERNATIVES

Management Area	Description, Management Prescription Emphasis	Alternative				
		C	A	B	D	E
8B	Primitive wilderness natural environment	0	36,060	0	0	0
8C	Semiprimitive wilderness essentially natural	56,950	0	0	0	0
2B	Emphasis on roaded natural recreation	0	800	1,050	1,500	800
3A	Semiprimitive nonmotorized recreation	0	400	0	0	0
4B	Emphasis on wildlife habitat, vegetation management	0	1,300	29,186	18,400	30,450
4D	Maintain and Improve Aspen Stands	0	1,800	0	0	0
5B	Big game winter range with vegetation management	0	10,640	23,014	13,500	9,300
6B	Emphasis on forage for livestock	0	5,450	2,800	22,650	15,500
7A	Emphasis on wood fiber production	0	0	900	900	900
9B	Tree stand management water production	0	3,100	0	0	0

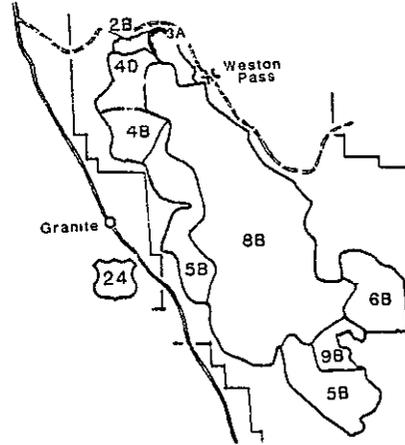
Detailed descriptions of the Management Area Prescriptions are found in the Forest Plan Chapter III, Management Direction, Forest Plan.

BUFFALO PEAKS WILDERNESS STUDY AREA ALTERNATIVES

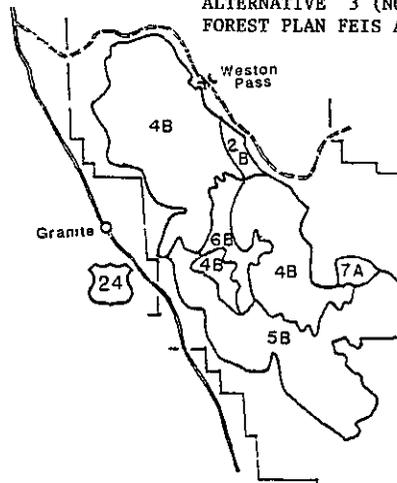
ALTERNATIVE 1
FOREST PLAN FEIS ALTERNATIVE C



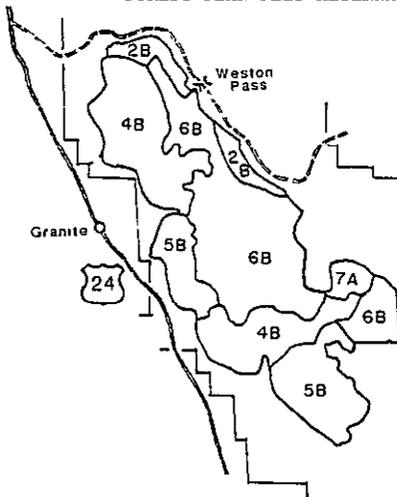
ALTERNATIVE 2 (PROPOSED ACTION)
FOREST PLAN FEIS ALTERNATIVE A



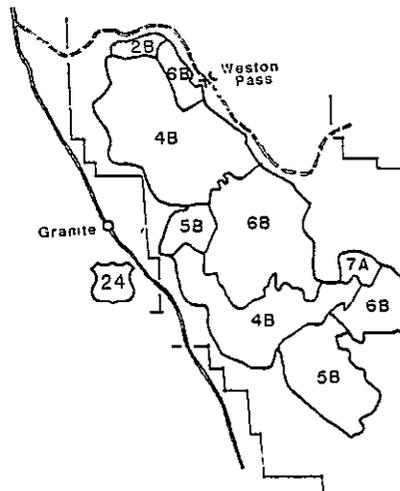
ALTERNATIVE 3 (NO ACTION)
FOREST PLAN FEIS ALTERNATIVE B



ALTERNATIVE 4 (RESOURCE DEVELOPMENT)
FOREST PLAN FEIS ALTERNATIVE D



ALTERNATIVE 4 (RESOURCE DEVELOPMENT)
FOREST PLAN FEIS ALTERNATIVE E



BUFFALO PEAKS WILDERNESS STUDY AREA

PIKE AND SAN ISABEL NATIONAL FORESTS

COLORADO

ALTERNATIVE 2

Figure II-2

MODIFIED BOUNDARY

2/83

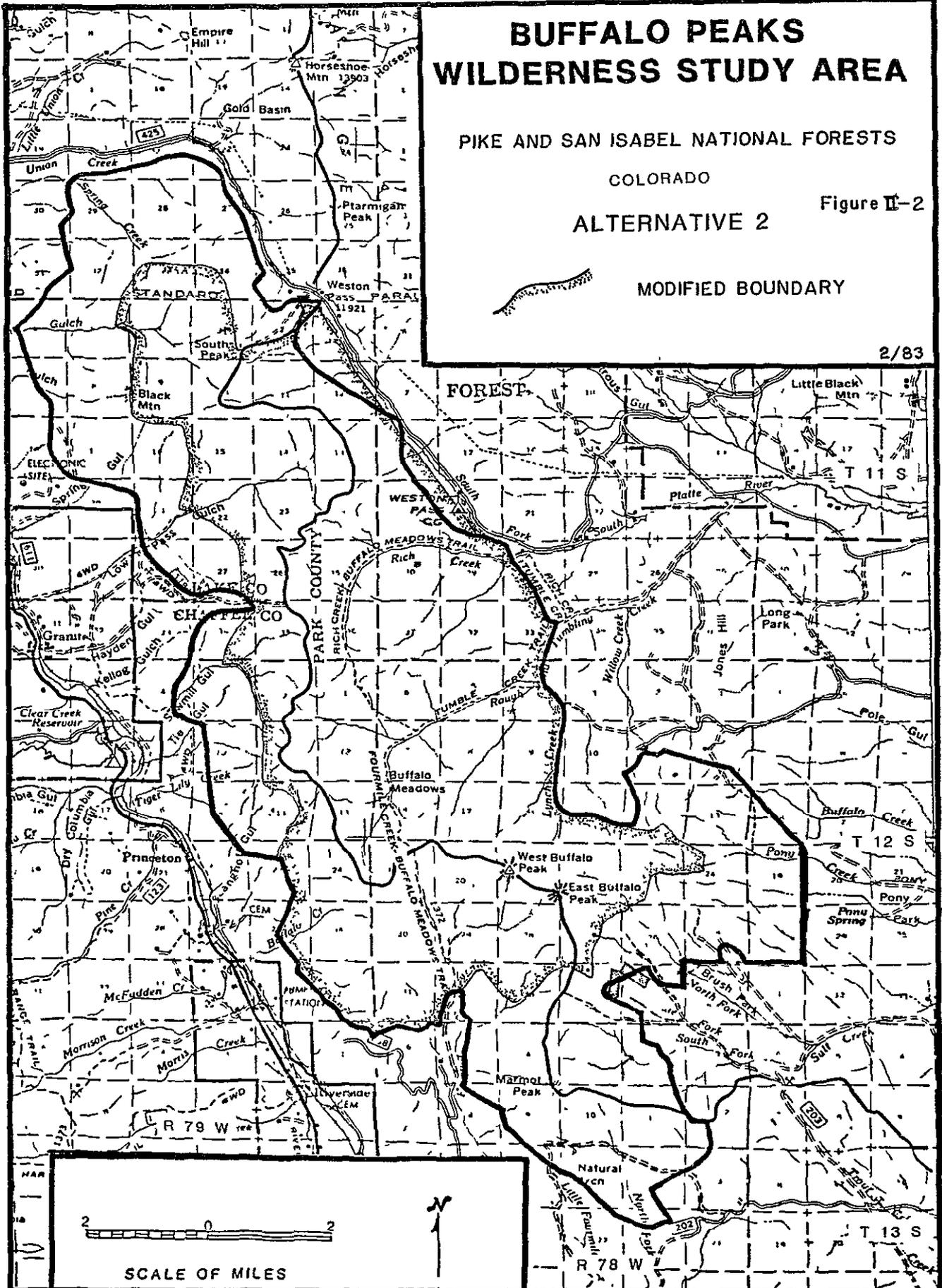


Table II-B shows the expected environmental and administrative consequences under each alternative.

TABLE II-B

SUMMARY OF ENVIRONMENTAL AND ADMINISTRATIVE CONSEQUENCES

-----Alternatives-----

<u>RESOURCE</u>	1 (Suitable) ALT C	2 (Suitable With Boundary) (Modification) ALT A	3 (Unsuitable) NO ACTION - ALT B RESOURCE DEVELOPMENT ALTS D & E
<u>Wilderness</u>			
Area of wilderness	56,950 Acres	36,060	-0-
Potential <u>loss</u> of wilderness character:			
Natural Integrity	None (With Management)	Low/increased	Low/Moderate
Apparent Naturalness	None	Low/increased	Increased
Solitude	Low	Low	Low
Primitive Recreation Opportunity	Low	Low/None	None
Supplemental Attributes	None	None	None
Scenic Value	Low	Low	Low
<u>Minerals</u> (including oil and gas)			
Likelihood of mineral exploration and development	(Withdrawn)*	(Part Withdrawn)*	No Change
Mineral leasing effects			
Leasable	None	20,890	56,950 Acres (0-NO ACTION)
No Leasing (Will be withdrawn)	56,950 Acres	36,060	-0-
Minerals Reserved	250 Acres	20 Acres	250 Acres

*Subject to valid existing rights

Table II-B Continued.

<u>RESOURCE</u>	-----Alternatives-----		
	1 (Suitable) ALT. C	2 (Suitable With Boundary) (Modification) ALT A	3 (Unsuitable) NO ACTION-ALT E ALTS D & E
<u>Timber</u>			
Tentatively Suitable for timber production	36,000 Acres	36,000 Acres	36,000 Acres
Growing Stock Volume	158.2 MMBF ^{1/}	158.2 MMBF ^{1/}	158.2 MMBF ^{1/}
Current annual allowable sale quantity (slopes less than 45 percent)	-0-	.8 MMBF ^{1/}	1.9 MMBF ^{1/} (O-NO ACTION)
Long term sustained yield (LTSY) Productive Forest land - All Slopes	-0-	2.8 MMBF ^{1/}	5.5 MMBF ^{1/} (O-NO ACTION)
LTSY-Slopes less than 45 percent	-0-	.6 MMBF ^{1/}	3.0 MMBF ^{1/} (O-NO ACTION)
<u>Water Quantity</u>			
Water yield increase (maximum potential)	-0-	500 Ac/Ft. ^{2/}	1,500 Ac/Ft. (O-NO ACTION)
<u>Water Uses</u>			
Effects on existing water uses	None	None	None
<u>Range</u>			
Livestock Forage	1,833 AUM's ^{3/}	1,833 AUM's ^{3/}	1,833 AUM's ^{3/}
<u>Wildlife</u>			
Improve winter range (Deer and Elk)	-0-	8,300 Acres	9,200 Acres (O-NO ACTION)
Maintain or improve diversity	-0-	17,300 Acres	36,000 Acres (O-NO ACTION)

Table II-B Continued.

<u>RESOURCE</u>	-----Alternatives-----		
	1 (Suitable) ALT C	2 (Suitable With (Boundary) (Modification) ALT A	3 (Unsuitable) NO ACTION - ALT B
<u>Recreation</u>			
Recreation Opportunity Classes			
Roaded Natural Semiprimitive Motorized Nonmotorized	-0- -0- 56,950 Acres	1,560 Acres -0- 55,390 Acres	8,250 Acres -0- 48,700 Acres
Area closed to ORV Use ^{4/} (off road vehicles)	56,950 Acres	56,950 Acres	56,950 Acres
Annual Recreation Use at Capacity	2,070 PAOT ^{5/} 124,150 RVD's ^{6/}	2,149 PAOT ^{5/} 132,454 RVD's ^{6/}	4,297 PAOT ^{5/} 168,130 RVD's ^{6/}
<u>Land Ownership</u>			
Change in priority for acquisition of private inholdings.	None	None	None

- Notes:
- 1 MMBF = Million Board Feet
 - 2 AC/FT Acre Feet
 - 3 AUM = Animal Unit Months
 - 4 Per Travel Management Plan
 - 5 PAOT = People-at-One-Time
 - 6 RVD's = Recreation Visitor Days

SUMMARY OF WILDERNESS SUITABILITY EVALUATION

Chapter IV describes in detail the wilderness suitability evaluation conducted for the Buffalo Peaks Wilderness Study Area. A conclusion of suitability or unsuitable considers the areas capability, availability, and need for wilderness.

IS THE AREA CAPABLE OF WILDERNESS DESIGNATION?

Both physical characteristics and manageability of the area were evaluated. The Wilderness Attribute Rating System (WARS) for Buffalo Peaks was rated at 18 as described in Chapter III.

The area is manageable as wilderness. Conflicts with outside uses can be avoided. Terrain, natural features, and readily definable landmarks, for the most part, make identification of a manageable boundary possible.

IS THE AREA AVAILABLE FOR WILDERNESS?

The availability analysis considered the value and benefit of a wilderness resource compared to the value and need for other resources that would be foregone under a wilderness designation. Significant findings are as follows:

Past mining activity adjoining the area, current claim staking, and estimated potential indicates that the area has potential mineral resources.

The tentatively suitable forest land within the Buffalo Peaks WSA can help meet local demands for fuelwood.

Buffalo Peaks WSA has the potential for an increased water yield. This potential increase is important for domestic and agricultural users both locally and downstream.

Habitat improvement and maintenance are required to meet the projected wildlife needs on the Pike and San Isabel National Forests and the DOW's southeast region. The need for winter range management is increasing due to the encroachment by private land development on winter range located on private land.

IS THE AREA NEEDED FOR WILDERNESS?

The Pike and San Isabel National Forests contain 257,420 acres of wilderness. In addition, other wildernesses with approximately 298,800 acres are adjacent to the Forest.

Chaffee, Lake, and Park Counties currently contain about 247,000 acres of wilderness which is 11 percent of the counties' area. Addition of the entire Buffalo Peak WSA would increase this to about 304,000 acres or about 13 percent.

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.

CHAPTER III

AFFECTED ENVIRONMENT

The suitability or unsuitability of the Buffalo Peaks Wilderness Study Area (WSA) for addition to the National Wilderness Preservation System is a function of the physical, biological, social, and economic environment within and surrounding the WSA. This chapter describes the various environmental factors relating to this suitability determination. Chapter IV describes the effects on the environment which would result from implementation of the alternatives.

PHYSICAL SETTING

PHYSIOGRAPHY

The Buffalo Peaks WSA is dominated by East Buffalo Peak and West Buffalo Peak in the south central portion of the area, with elevations ranging from about 9,200 feet to 13,326 feet on West Buffalo Peak. The area lies along the north-south ridge between the Arkansas and South Platte River drainages, with gentle terrain along the broad ridgetop and steeper terrain on the slopes above the Arkansas River and South Park. Most of these slopes are less than 40 percent, although some slopes in excess of 70 percent occur adjacent to the Buffalo Peaks and along the South Fork of the South Platte River. Table III-A compares ecological and landform features of the Buffalo Peaks area with other nearby wildernesses.

GEOLOGY AND SOILS

The WSA is located on the southern end of the Mosquito Range which is an asymmetrical anticline, gently sloping on the east and steeply faulted on the west side. Paleozoic sedimentary rock layers cover large portions of the higher parts of this range. The Buffalo Peaks are two highly eroded volcanic mountains which are extrusions of lava and ash that have buried the Mosquito Range formation. They are a major volcanic formation related to a group of small volcanic cones near Antero Junction in South Park. No geologic hazards have been identified. Soil erosion and suspended sediment production is within acceptable limits.

These geologic features include rock outcrops, talus deposits, boggy areas, and steep slopes. Large talus slopes occur around the summits of the Buffalo Peaks.

Soils are generally moderate to low in fertility. Mass movement potential reflects predominately moderate to low ratings. Erosion hazard is only moderate throughout the area, except for small areas considered high.

VEGETATION

Timberline occurs at about 11,800 feet elevation with alpine vegetation, rock outcrops, and talus slopes above this elevation. The vegetation below timberline, at higher elevations, is generally Engelmann spruce on north slopes with Douglas-fir on south slopes. As elevation decreases, aspen occurs interspersed with the spruce/fir vegetation types. At lower elevations ponderosa pine becomes more common, eventually changing to pinon/juniper at the lowest elevations.

Other species include lodgepole pine, bristlecone pine, and limber pine. Riparian vegetation occurs in the valley bottoms and around wet areas. Within the forested areas, there are meadows composed of grasses, forbs, and shrubs.

The southern portion of the area, south of Marmot Peak, contains small areas of pinon/juniper. Approximately 67 percent of the total area is forested with the other 33 percent consisting of alpine lands, talus slopes, rock outcrops, meadows, and brushlands.

CLIMATE

The climate of the study area is characterized by mild 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. Annual precipitation varies and is influenced by topographic features. The average annual precipitation varies from about 30 to 40 inches at the higher elevations to 18 to 26 inches at lower elevations. Over 70 percent of the annual precipitation is received as snowfall.

RESOURCE AND SUPPORT ELEMENTS

WILDERNESS

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, outstanding opportunities for solitude and outstanding 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. The possible rating could be from 4 to 28.

The WSA has a moderate degree of natural integrity based on physical developments and evidences of man which include undeveloped roads, trails, old logging, and mineral developments, only part of which are separable from the area or restorable to a natural condition. The WSA offers moderate screening from outside influences and between users within the area. Opportunities for recreation use include traditional hiking, horseback riding, fishing, and hunting with only moderate challenge.

This rating is summarized as follows:
(Scale 1 to 7)

	<u>Rating</u>
Influence of impacts on natural integrity	5
Influence of impacts on apparent naturalness	5
Opportunities for solitude	4
Opportunities for unconfined recreation	4
TOTAL WARS RATING	18

In addition to the attribute 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

The overall rating for the supplemental attributes was 2 on a scale of 1 to 5, with 5 being the most favorable for wilderness.

The suitable portion of the modified boundary alternative has not been rated separately. However, the WARS rating would be equal or better than that determined for the area as a whole.

Geographic Distribution of Wilderness.

The Pike and San Isabel National Forests contain 257,080 acres of wilderness. In addition, other wildernesses occur within 150 miles as shown in Table III-A. The Study Area Relationship Map, Figure III-1 shows the WSA in relationship to other areas within and adjacent to the Pike and San Isabel Forests.

TABLE III-A

WILDERNESS WITHIN 150 AIRLINE MILES
OF THE BUFFALO PEAKS WSA

<u>Wilderness</u>	<u>Pike and San Isabel National Forests</u> (net) Acres	<u>Other National Forest (Colorado)</u> (net) Acres	<u>Other Agency</u> (net) Acres
<u>Within 50 Miles</u>			
Collegiate Peaks	82,152	84,486	
Maroon Bells - Snowmass	-	179,042	
Hunter-Frying Pan	-	74,250	
Mount Massive	27,980	-	
Holy Cross	8,958	113,642	
Eagles Nest	-	133,688	
Mount Evans	34,127	40,274	
Lost Creek	<u>105,090</u>	<u>-</u>	
Sub-Total	258,307	625,382	
<u>Within 100 Miles</u>			
Great Sand Dunes	-	-	33,490
LaGarita	-	103,986	
Big Blue	-	98,235	
West Elk	-	176,092	
Raggeds	-	59,105	
Flat Tops	-	235,035	
Indian Peaks	<u>-</u>	<u>70,374</u>	<u>-</u>
Sub-Total	-	742,872	33,490
<u>With 150 Miles</u>			
South San Juan	-	127,594	
Weminuche	-	459,172	
Lizard Head	-	41,158	
Mount Sneffels	-	16,200	
Mount Zirkle	-	139,818	
Rawah	<u>-</u>	<u>73,109</u>	<u>-</u>
Sub-Total	-	857,051	-
TOTAL	258,307	2,225,260	33,490
TOTAL WILDERNESS =		2,517,507 ACRES	

Minerals

The Buffalo Peaks Wilderness Study Area (WSA) is located in the Mosquito Range. Surrounding the WSA are several mining districts including Granite on the west, Weston Pass on the northeast, and Fourmile on the south side. The U.S. Geological Survey and U.S. Bureau of Mines have prepared a mineral resource potential report. A copy of the report is found in Appendix I of the Forest Plan.

The Granite Mining District is located northeast of Granite on the Chaffee-Lake County line. Silver, gold, and lead are found in veins cutting the Precambrian granite. Several of the mines and prospects are the Gopher Shaft, Bunker Hill Shaft, Magenta Shaft, and Granite Tunnel driven to intersect the mines on Yankee Blade Hill. Placer gold from these areas has been found along the Arkansas River.

The Weston Pass Mining District straddles Weston Pass but the majority of the historic activity was on the east side. The silver, zinc, and lead ores occur as replacement deposits in the Leadville limestone. The production was apparently limited to surface enrichment. The Ruby Mine contained disseminated galena, some sphalerite, along with cerussite, calamine, and smithsonite.

The Fourmile Mining District is located on the southern end of the Buffalo Peaks Wilderness Study Area several miles north of Buena Vista. The district was worked from 1935 through 1937 when 53.5 ounces of gold were produced and in 1940 when gold, silver, copper, lead, and zinc were mined. There is no other recorded production.

There are no current oil and gas leases or lease applications in the area. The southeast end indicates high to medium potential for leasable minerals.

Table III-B and the Minerals Potential Map, Figure III-2, shows the mineral information derived as a part of the Forest planning process and based on available information and geology of the area.

TABLE III-B
MINERAL POTENTIAL

	<u>Acres (thousands)</u>
Known reserves or producing sites.	0
Moderate to high potential for locatable minerals.	11.2
Moderate to high potential for leasable minerals.	7.2
Low potential for locatable minerals.	45.7
Low potential for leasable minerals.	49.7
Mineral rights reserved	.25

This updated information is comparable to the original RARE II evaluation which estimated a rating of 60 for the occurrence of hardrock minerals and an 85 for the occurrence of uranium based on a scale of 0 to 100.

TIMBER

Much of the timber is mature or approaching maturity. Fires or previous logging has resulted in stands of pole timber, seedlings and saplings, or areas with insufficient tree stocking to allow intensive management. Aspen, Engelmann spruce, subalpine fir, ponderosa pine, Douglas-fir, and lodgepole pine are all present. Bristlecone pine, limber pine, and several nonforest types including alpine tundra, subalpine grasslands, mountain meadows, and Krummholz, are also represented.

Early logging occurred in the late 1800's or early 1900's for production of railroad ties, mine props, house logs, and bridge timbers. It is not known whether this logging, wildfire, or logging followed by wildfire is responsible for the understocked, seedling-sapling and pole-size stands present in the area.

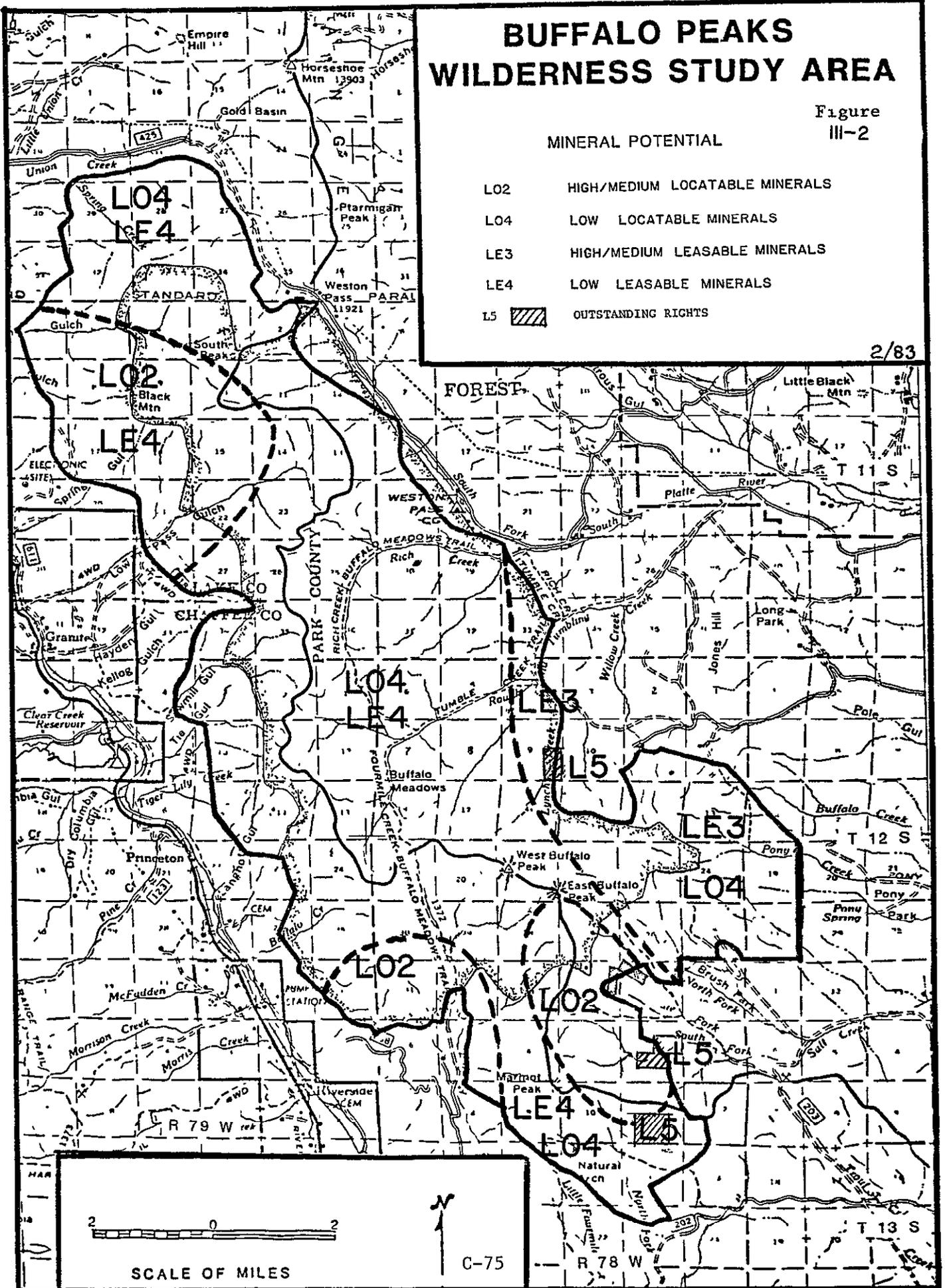
BUFFALO PEAKS WILDERNESS STUDY AREA

Figure
III-2

MINERAL POTENTIAL

- L02 HIGH/MEDIUM LOCATABLE MINERALS
- L04 LOW LOCATABLE MINERALS
- LE3 HIGH/MEDIUM LEASABLE MINERALS
- LE4 LOW LEASABLE MINERALS
- L5  OUTSTANDING RIGHTS

2/83



SCALE OF MILES

C-75

The WSA includes approximately 56,900 acres, of which 63 percent is forest land tentatively suitable for producing regulated timber products as shown on Table III-C and the Tentatively Suitable Forest Land Map, Figure III-3. Approximately 33 percent of the tentatively suitable land base is on slopes less than 45 percent and suitable for logging with conventional harvesting systems.

TABLE III-C
FOREST LAND CLASSIFICATION

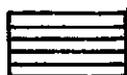
<u>Classification</u>	<u>(Thousand Acres)</u>	
	<u>Total Area</u>	<u>Modified Boundary</u>
Total Area	56.9	36.1
Tentatively Suitable Forest Land:	36.0	18.7
Tentatively Suitable Conventional Logging, Slopes less than 45%:	18.5	5.3
Tentatively Suitable Slopes greater than 45%	17.5	13.4
Not Suitable	5.2	4.4
Nonforested and Other Unsuitable:	15.7	13.0
	<u>WSA</u>	<u>Modified Area</u>
Current Annual Allowable Sale Quantity Slopes < 45%	508 MCF (1,857 MBF)	295.6 MCF (1,072 MBF)
Current Growing Stock Volume	158,200 MBF	90,000 MBF
Long Term Sustained Yield All Slopes	1,536 MCF (5,533 MBF)	772 MCF (2,782 MBF)
Long Term Sustained Yield Slopes < 45%	814 MCF (2,953 MBF)	468 MCF (1,682 MBF)

MCF = Thousand Cubic Feet
MBF = Thousand Board Feet

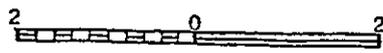
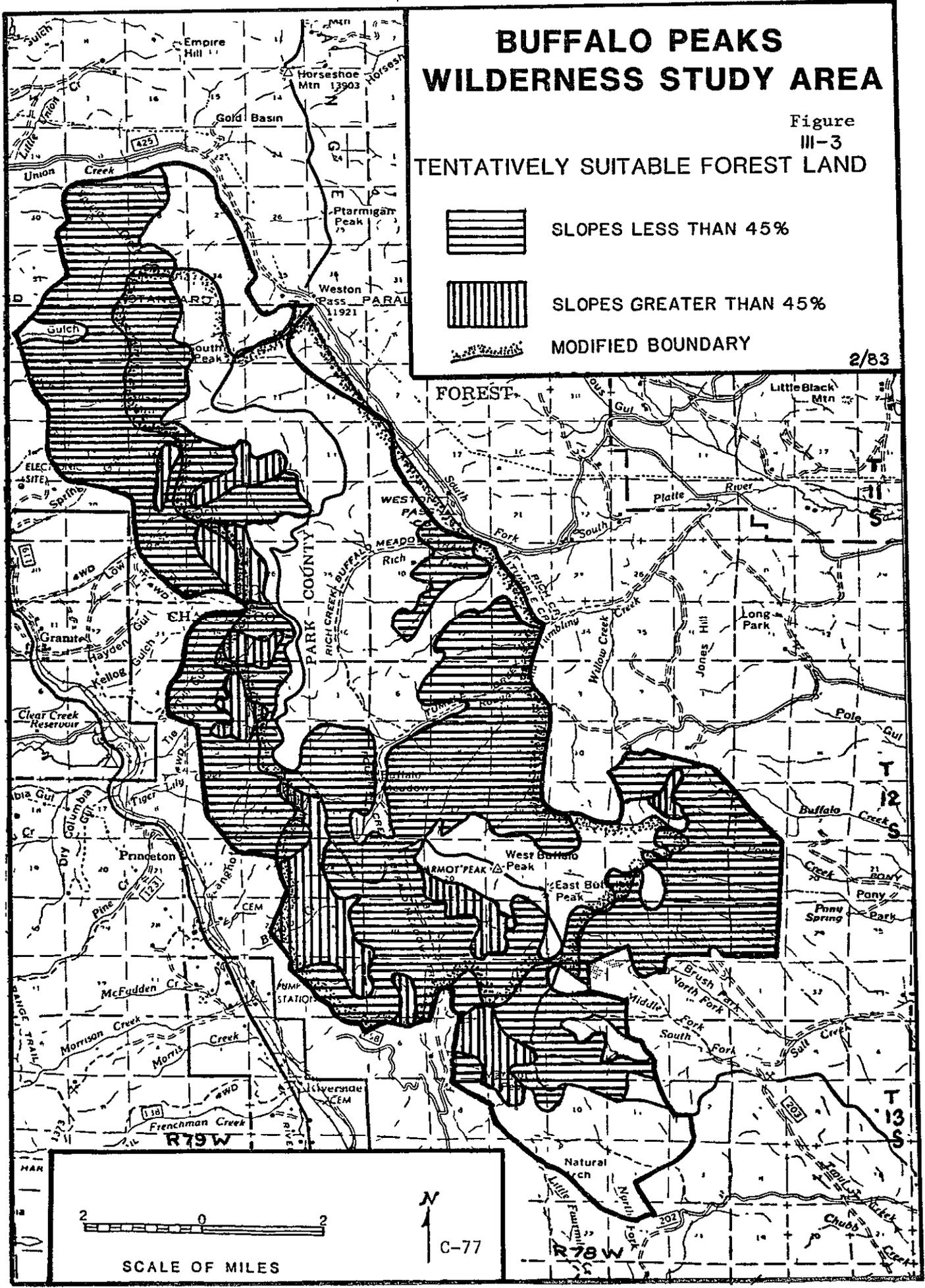
BUFFALO PEAKS WILDERNESS STUDY AREA

Figure III-3

TENTATIVELY SUITABLE FOREST LAND

-  SLOPES LESS THAN 45%
-  SLOPES GREATER THAN 45%
-  MODIFIED BOUNDARY

2/83



SCALE OF MILES

C-77

AIR QUALITY

Air quality is considered to be excellent over the WSA. The WSA is designated as a Class II area under Section 126(b) of the Clean Air Act.

HYDROLOGY AND WATER QUALITY

The Buffalo Peaks Wilderness Study Area encompasses portions of six watersheds. They are Twobit Gulch, Low Pass Gulch, Riverside, Fourmile Creek, South Fork of the South Platte River, and Buffalo Creek. Buffalo Creek and the South Fork of the South Platte River are within the South Platte River watershed. The other four watersheds are tributaries of the Arkansas River.

Stream types in this area provide riparian habitat and are favorable for sustaining natural populations of fish. The streams in the WSA are classified by the state as Class 1 recreation water, Class 1 cold water aquatic life, municipal water supplies, and agricultural water. Water quality data indicates that water quality is above the limits established by the state.

There are no existing water diversions or developments in the WSA. 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.

Water production varies from as low as .3 acre-feet per acre on the south end of the study area to 1.0 acre-feet per acre along the divide of the Mosquito Range. The estimated average water production from the study area is .5 acre-feet per acre.

The current water yield is estimated to be about 33,000 acre-feet per year. There is a potential to increase this yield by 1,500 acre-feet to about 34,500 acre-feet per year through vegetative treatment in spruce/fir and lodgepole vegetation types above 9,000 feet elevation. With the modified boundary, the potential for increase would be 500 acre-feet.

WILDLIFE AND FISH

Most of the wildlife and fish species which occur on the Pike and San Isabel National Forests also occur on the WSA. The management indicator species which commonly exist are pine marten, bighorn sheep, elk, mule deer, northern three-toed woodpecker, and 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	M
Mt. Grassland/Tundra	H
Rock	M
Aspen	M
Lodgepole Pine	L
Ponderosa pine	NONE
Oak	L
Pinon/juniper	L

Habitat Abundance Key

H - High
M - Moderate
L - Low

The areas surrounding the study area are typically low elevation habitats such as ponderosa pine, pinon/juniper, and mountain shrublands.

The WSA rates moderate to high in habitat diversity and provides winter range for deer, elk, and bighorn sheep, as shown in Table III-E and Wildlife Winter Range Map, Figure III-4. 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>
Deer	6.8
Elk	2.4
Bighorn Sheep	14.3

BUFFALO PEAKS WILDERNESS STUDY AREA

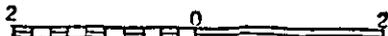
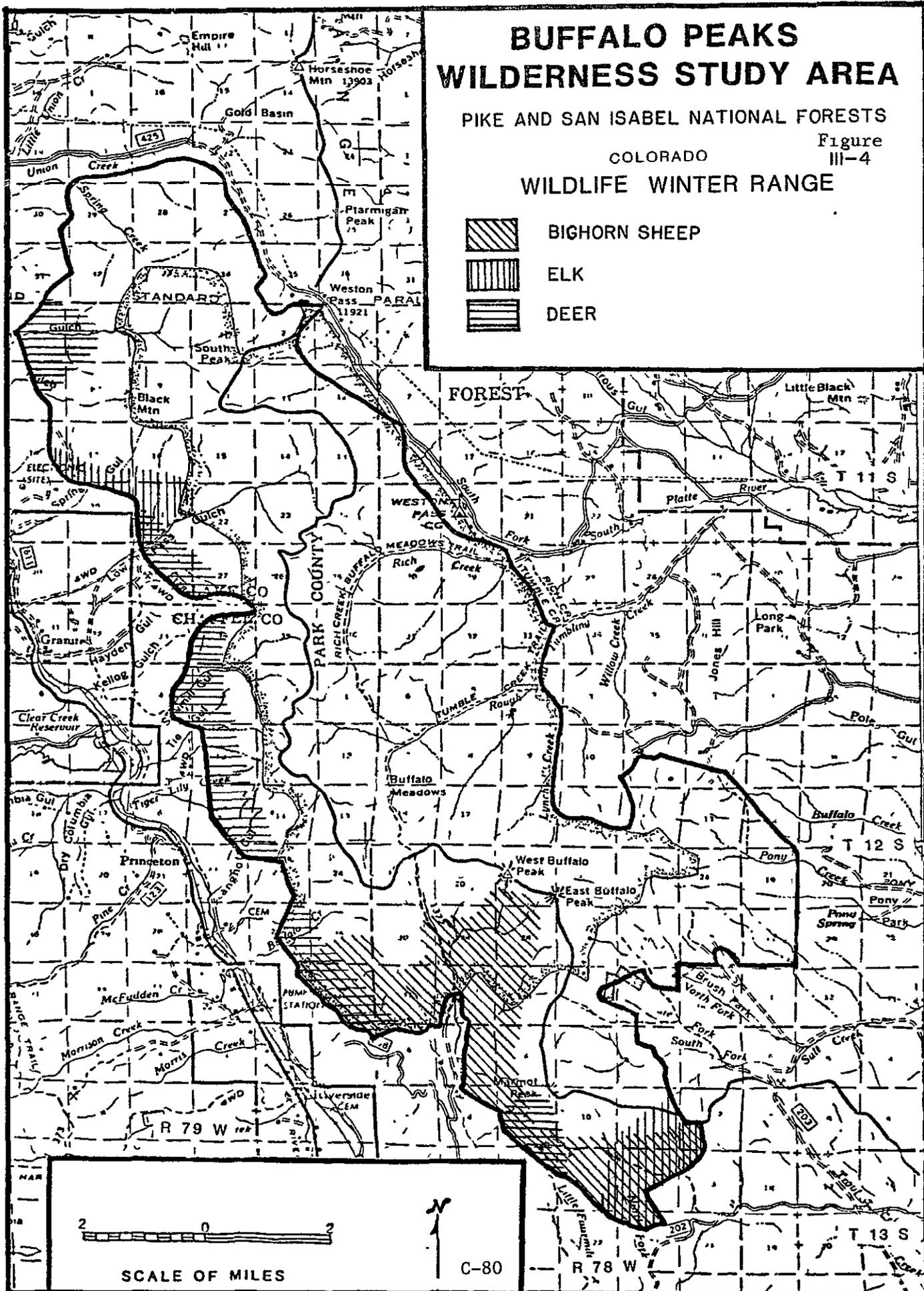
PIKE AND SAN ISABEL NATIONAL FORESTS

Figure III-4

COLORADO

WILDLIFE WINTER RANGE

-  BIGHORN SHEEP
-  ELK
-  DEER



SCALE OF MILES

C-80

Important lambing areas for bighorn sheep, elk calving, and deer fawning areas totalling 28,300 acres have also been identified in the Buffalo Peaks WSA.

VISUAL RESOURCES

The Buffalo Peaks WSA contains a variety of landscapes typical of the Colorado Rockies. The majority of the area does not possess highly distinctive landforms or rockforms, or water bodies. There are no lakes or significant ponds.

The Buffalo Peaks are highly visible from all directions and are a focal landscape. Viewing is normally from several miles, allowing the viewer to visually combine the prominent landform of the peaks with forested slopes and grassy parks of the foreground.

Vegetation diversity is excellent with conifer-aspen slopes intermingled with open meadows. Fall color displays are considered spectacular.

The visual variety class includes 16,640 acres of Class A (outstanding) and 40,310 acres of Class B (common). See Variety Class Map, Figure III-5.

RECREATION

Buffalo Peaks has been popular with hikers and horseback riders for many years. Historically, the area was accessible by four-wheel drive vehicles from Weston Pass on the north, and from the Granite area on the west for travel to and along the main divide. Motor vehicle travel has been prohibited from 1971 to the present time. Current use is concentrated along Rich Creek in Buffalo Meadows and on the access trails along Fourmile Creek and Rough and Tumbling Creek. Recreation activities include the traditional uses such as backpacking, horseback riding, fishing, hunting, nature study, cross-country skiing, and snowshoeing.

Approximately 42 percent (923,000 acres) of the Pike and San Isabel National Forests are available for motorized recreation use to meet motorized use needs identified in the State Comprehensive Outdoor Recreation Plan.

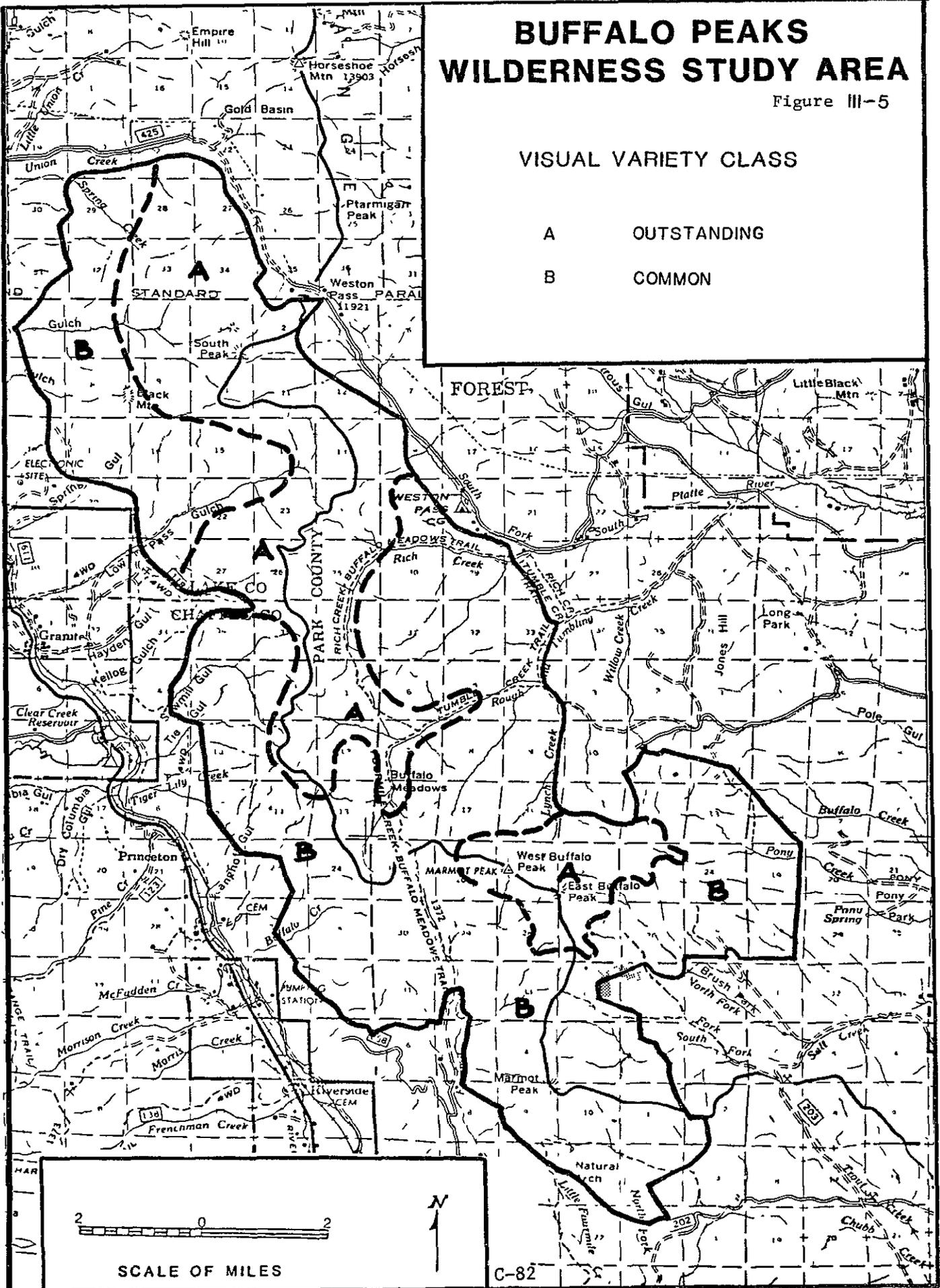
Current recreation use was estimated to be 15,300 visitor days in 1981. This was comprised of 12,800 visitor days for various dispersed non-motorized activities, 1,500 visitor days for hunting and 1,000 visitor days for fishing.

BUFFALO PEAKS WILDERNESS STUDY AREA

Figure III-5

VISUAL VARIETY CLASS

- A OUTSTANDING
- B COMMON



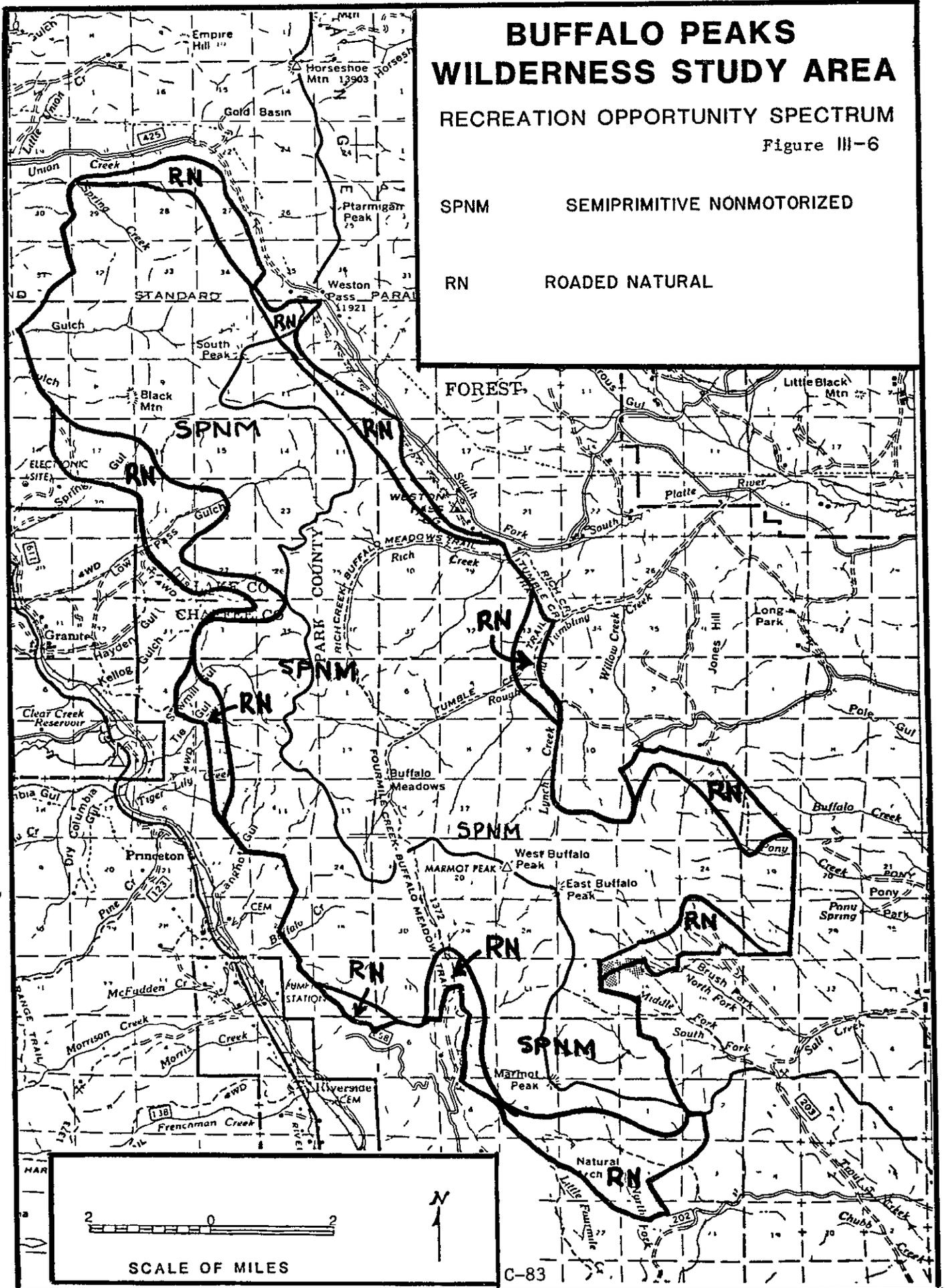
BUFFALO PEAKS WILDERNESS STUDY AREA

RECREATION OPPORTUNITY SPECTRUM

Figure III-6

SPNM SEMIPRIMITIVE NONMOTORIZED

RN ROADED NATURAL



The Recreation Opportunity Spectrum Classification shows 48,700 acres (86 percent) in the semiprimitive nonmotorized class and 8,250 acres in the roaded natural category (14 percent) as shown on Figure III-6. The roaded natural areas receive this classification due to the proximity of roads and other developments near the boundary, rather than being roaded themselves.

CULTURAL RESOURCES

No cultural resource sites have been identified in the WSA, though intensive surveys have not been made. The overall area has been used widely in prehistoric times, presumably for hunting with transient camps, and historically for hunting, prospecting, and logging. It is likely that intensive surveys would reveal evidences of these past uses.

NON-FEDERAL OWNED LANDS

The WSA is entirely National Forest System land except for parts of two patented mining claims which are located on the boundary in Sections 34 and 35, T.12S., R.78W., 6th P.M., as shown in Figure III-7. These claims have no effect upon access or use of the area, and can be excluded by a minor boundary adjustment and deletion of about 20 acres of the WSA.

TRANSPORTATION

Transportation systems to the area consist of paved highways, gravel roads, unimproved roads, four-wheel drive roads, and trails. There are also nonconstructed primitive roads within the area which are closed to public use.

The study area is accessible from Weston Pass Road Number 425 which extends from U.S. Highway 285 across Weston Pass on the north side of the area to connect with U.S. Highway 24. Access is also provided from U.S. Highway 285 by the Buffalo Springs Road Number 431 to the southeastern boundary of the area. The Fourmile Road Number 200 extends from U.S. Highway 24 north of Buena Vista to a trailhead on Fourmile Creek. Other old timber sale roads also extend close to the boundary on the southeast side.

The primary trail access within the area is the Buffalo Meadows Trail which extends from the Fourmile Creek Road through Buffalo Meadows to connect with the Weston Pass Road. The area is readily accessible to the Front Range population centers from Denver to Pueblo.

RANGE

The Buffalo Peaks area contains portions of four existing livestock allotments with a permitted use of approximately 948 animal unit months per year. See Figure III-8.

The overall condition of the range is fair to good. On the lower southeast side, conditions are fair to poor. Structural improvements include only a few drift fences along the east side of the area.

SOCIAL SETTING

The Buffalo Peaks WSA is within three Human Resource Units (HRU's). They are the Salida, Leadville, and South Park HRU's. The HRU's are areas of analysis delineated to describe and assist in designing management actions that would be responsive to local issues, conditions, and needs. These HRU's correspond to the Chaffee, Lake, and Park County boundaries.

POPULATION

Populations in the three HRU's is relatively small with only about 25,000 people. Trends in recent years indicate significant increases may be expected, however, reaching double the current figure by the year 2010.

LIFESTYLE

The lifestyle in the HRU's is characterized by the rural mountain setting. People are often reliant on their own resources to supplement characteristically low incomes or to offset high living costs. For instance, fuelwood gathered from National Forest land is often the major source of heat in the cold climate. Recreation activities include use of the Forest for hunting, fishing, picnicking, as well as general enjoyment and sightseeing.

ATTITUDES, BELIEFS AND VALUES

Attitudes, beliefs, and values are generally conservative. Attitudes reflect a recognition of dependence on the Forest for the many resources it can supply.

SOCIAL ORGANIZATION

The social organization is typical of rural and low population areas. The local people form tight knit groups of similar backgrounds and outlooks. Their interest in local situations, activities, happenings, and Government is active and enthusiastic and generally well informed.

POPULATION AND LAND USE

Land use is gradually shifting from ranching and mining toward recreation and tourist oriented opportunities as well as service and retail uses. Land and water to meet development needs is becoming increasingly scarce as population pressures increase. Local concerns are indicated in the county goals such as the desires to provide for compatible land uses, foster contributing industrial operations, be self sufficient, and protect the mining industry.

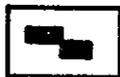
ECONOMIC SETTING

Mining related employment is important in the HRU's, especially Lake County where over 30 percent of the work force has been involved in this activity. The tourist industry as well is an important segment of the local economies. Incomes generally have been below state average while unemployment has been above the state average. Local Government goals and objectives reflect the dependency on many of the resources provided by the nearby National Forest.

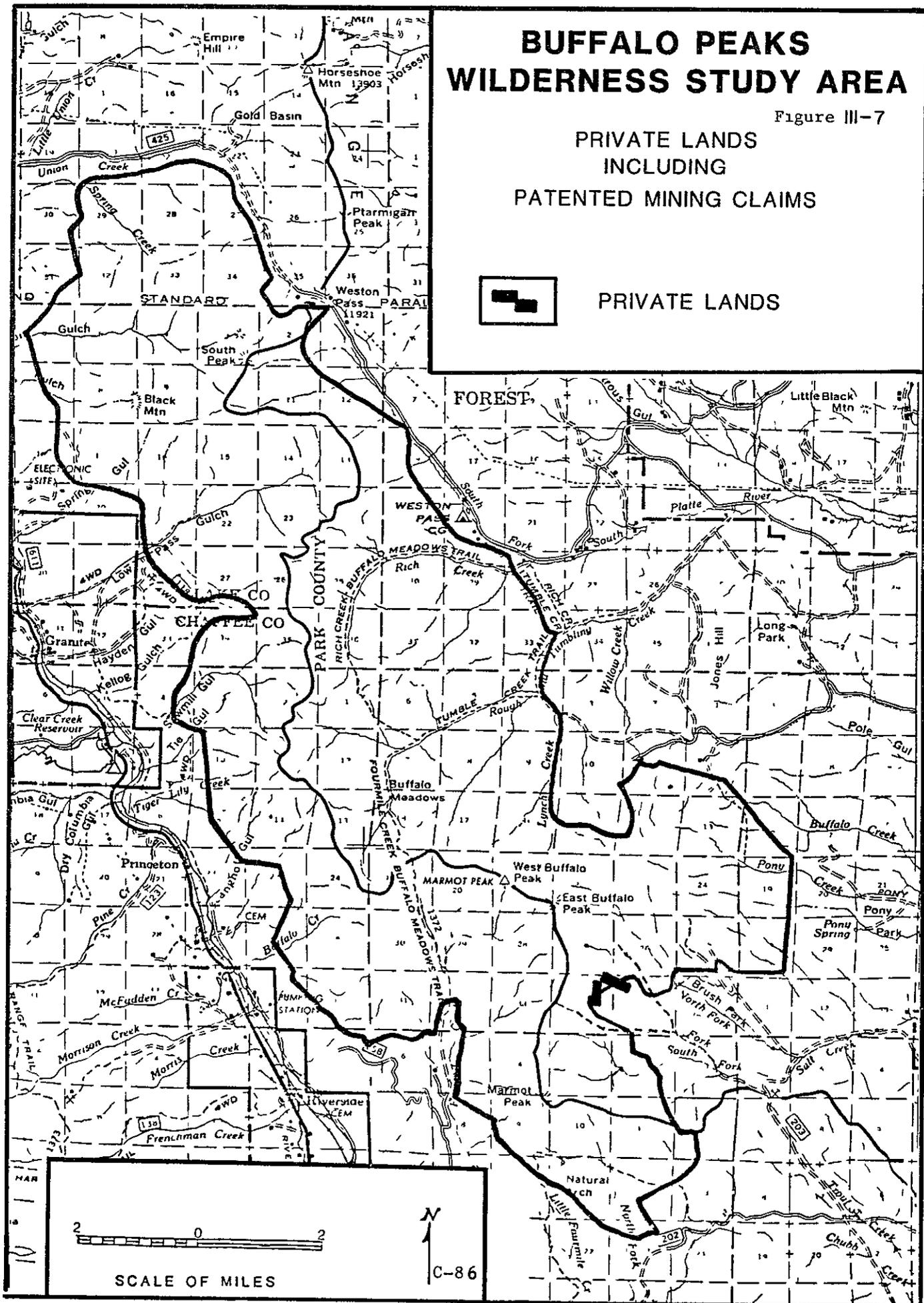
BUFFALO PEAKS WILDERNESS STUDY AREA

Figure III-7

PRIVATE LANDS
INCLUDING
PATENTED MINING CLAIMS



PRIVATE LANDS



SCALE OF MILES

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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. 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, would recommend adding 56,950 acres for addition to the National Wilderness Preservation System. Although this would add additional acres to the Wilderness system, no unique land forms or ecosystems would be added which are not currently represented in the National Wilderness Preservation System.

Alternative 2, The Proposed Action, suitable with modified boundary would add 36,060 acres to the National Wilderness Preservation System. The remaining 20,890 acres would be managed for other resource emphasis in accordance with the Forest Plan Prescriptions.

Alternatives 3 and 4, unsuitable, would recommend the area not be added to the National Wilderness Preservation System. The area would be managed for resource emphasis as set forth in the Forest Plan Prescriptions.

The wilderness character of the WSA will be maintained until Congress acts on the recommendation.

Under the Resource Development Alternative, timber harvest, mineral development and associated road system development could reduce opportunities for primitive recreation, solitude, and affect the natural integrity, apparent naturalness and scenic values which presently characterize the area.

Under the No Action Alternative, mineral resources could be developed. This development, with associated roads, could reduce opportunities for solitude and affect the natural integrity and scenic values. If the mineral resource is developed, any roads needed would be authorized under a special use permit and general public use would be prohibited.

Theoretically, a visitor would potentially experience less solitude in the No Action Alternative since the visitor day use level would be higher than allowed in the Suitable Alternative.

The Unsuitable Alternatives (No Action or Resource Development) provide opportunities to protect scenic value by allowing vegetation treatment to reduce risks of insect and disease epidemics.

GEOLOGY AND SOILS

The overall landforms and soils will not be affected directly by either alternative. Increased potential for mineral activity and vegetation manipulation-activities with the unsuitable alternative could impact the soils within a specific project area, however. Mitigation measures would maintain adverse impacts within acceptable limits.

Soils generally are conducive to timber growth and vegetation treatment for water production and wildlife habitat maintenance and improvements.

MINERALS

The effects of the alternatives on potential mineral resources is significant. On midnight December 31, 1983, under the 1964 Wilderness Act, wilderness areas were withdrawn from mineral entry and leasing and access as well will be severely restricted. Costs of mitigation and restoration on existing valid claims would increase under a suitable alternative. Potential mineral resources, otherwise discovered and developed, might be foregone if inside a wilderness.

Under the unsuitable alternative, mineral exploration and development would continue to be administered according to the mining laws and laws pertaining to mineral leasing on National Forest system lands. Development of mineral resources would support local Government goals and assist local economies.

Oil, gas, or mineral exploration is administered according to the laws generally applicable to the National Forest System as directed by PL 96-560. Although until Congress determines otherwise, the WSA will be administered to maintain the present existing wilderness character in accordance with the Forest Direction and Management Area Prescriptions.

On the 250 acres or portion thereof where minerals are owned by others, development could occur regardless of the alternative.

Table IV-A illustrates the area subject to mineral leasing recommendations under the alternatives as set forth in the Forest Land and Resource Management Plan and EIS.

TABLE IV-A

MINERAL LEASING AREA

<u>Category</u>	Alternative 2		
	1 (Suitable)	(Suitable With (Boundary Modification)	3 (Unsuitable)
Leasable	None	20,890 Acres	56,950 Acres
No leasing (Will be withdrawn)	56,950 Acres	36,060 Acres	-0-

VEGETATION

The vegetation within the WSA will continue to be influenced mainly by natural ecological forces under the Suitable Alternative. Use of forage by livestock will continue and recreation use may create site specific changes. However, restoration can return disturbed areas to production but only over a long period of time due to the slow recovery of fragile ecosystems. Vegetation under wilderness management would tend towards climax species. Aspen would tend to be replaced by other species.

Under Alternative 4, unsuitable (Resource Development), the vegetation could be managed on as much as 60 percent of the area to provide wood fiber, increase water yield, and maintain and improve wildlife habitat.

Alternative 2, Suitable with Boundary Modification, would provide for vegetative management on the unsuitable area. The Suitable area would tend toward climax species as in Alternative 1 above.

TIMBER

Implementation of the suitable alternative (1) would result in the reclassification of the timber resource to the reserved category and make it unavailable for harvest. Timber stands would tend to become overmature with increased prevalence of insects and disease.

Under the unsuitable alternatives (3 and 4), at least the more accessible productive forest portion of the WSA could be harvested at some future time. This could amount to a long term sustained yield of up to 3.0 MMBF per year. It is unlikely that timber harvest would occur in the remainder of the area under present technology because of steep slopes, and/or low volumes.

The modified boundary alternative (2) would provide for 1.3 MMBF long-term sustained yield from those stands in the unsuitable portion.

Harvest of timber products would generally support local Government goals and objectives and provide some of the needed fuelwood in the HRU's.

PROTECTION

Air Quality.

There is no evidence to indicate that either alternative would have major effects on the WSA's. Class II designation for air quality or on the air quality protection requirements for the area.

Fire.

Selection of the suitable or suitable with modified boundary alternative would have little effect on the wildfire occurrence in the WSA. Natural accumulation of ground fuels would increase, however, over the long run. Intensity of fires and difficulty to control would increase.

The Resource Development alternative would provide the opportunity to manage vegetation for timber production and wildlife habitat and to reduce accumulation of fuels. Fire can be prescribed where applicable for those activities.

Forest Pest Management.

Under the suitable alternative, opportunities using an integrated approach to pest management are limited to control of insect and disease outbreaks in those situations where nonwilderness values on adjacent lands are threatened. As timber stands tend to become older and overmature under natural ecological processes the likelihood of insect and disease outbreaks will increase.

The unsuitable alternative (Resource Development) would provide for vegetation management producing healthy stands reducing infestation and buildup of insects and disease. The suitable with modified boundary alternative would provide for vegetation management on those areas not designated wilderness.

WATER

Water Quantity.

Wilderness designation under the suitable alternative would preclude future water yield improvement activities in the Buffalo Peaks WSA. The water yield would continue to be about 33,000 acre-feet per year subject to variations caused by natural ecological succession. Most alpine snowpack management activities such as snowfencing would be incompatible with the wilderness character.

Under the Resource Development Alternative, water resources would continue to be managed under the direction of the Forest Land and Resource Management Plan. Water yield improvement activities through vegetation management are anticipated. There is a potential to increase water yield by up to 1,500 acre-feet to provide a total of 34,500 acre-feet per year. The modified boundary alternative would provide for a potential increase of up to 500 acre-feet. Maximum water yields however would depend on intensive vegetation management which are not anticipated within the Forest Plan Management Prescriptions.

Water Uses and Rights.

A suitable or unsuitable recommendation will not affect any existing or proposed water uses. Most of the demand for Buffalo Peaks water will continue to be downstream in the South Platte and Arkansas drainages. Under the suitable alternative, proposed water development projects would require special approval by the President of the United States. There are no proposed water storage or diversion projects in the WSA.

Water Quality

The suitable alternative would tend to maintain existing water quality.

Under the unsuitable alternative, management practices including vegetation treatment would temporarily increase sediment yield. Mitigation measures in the Forest Plan Prescriptions would maintain quality within acceptable limits.

WILDLIFE AND FISH

The effects of either the suitable, suitable with modified boundary or unsuitable alternatives on wildlife include both beneficial and adverse effects.

As the amount of human use increases under either alternative, impacts on wildlife solitude will occur. Use by deer, elk, and bighorn sheep will be affected. Fish populations and sizes will also reflect increased user pressure.

Designation as wilderness will preclude some of man's activities such as timber harvest. It would eliminate exploration and development of the mineral resource. Management might limit the number of people using an area. Prescribed burning from a planned ignition or timber harvest would not be allowed in the area if designated as wilderness.

The State Comprehensive Wildlife Plans identify needs in Colorado's southeast region to increase wildlife populations, particularly big game species. Opportunities for habitat improvement for current or increasing populations have been identified in the area. Wilderness designation however would be acceptable for the State Division of Wildlife for management of Bighorn Sheep.

Under the unsuitable (Resource Development) Alternative, wildlife habitat management by prescribed burning or vegetation management by timber harvest to maintain or improve wildlife habitat on up to 36,000 acres would be possible. Winter range for deer and elk could be improved on up to 9,200 acres. Improvement of habitat diversity is beneficial to nongame species as well. The modified boundary alternative would permit improvement on up to 8,300 acres of deer and elk winter range.

Bighorn Sheep transplants in recent years in the southwestern part of the WSA reflect the area's importance as bighorn sheep range and emphasizes the need for habitat improvement where the potential exists. (Figure III-4).

Traditional winter range for deer, elk, and bighorn sheep extend outside of the National Forest System lands. Expanding human population in the HRU's is expected to double by the year 2010 and development continues to encroach on the traditional wildlife winter ranges, decreasing the available area. Under Alternative 2 or 3, increased capacities in the WSA could help offset those losses.

VISUAL RESOURCES

The suitable alternative would place all of the area under a visual quality objective of preservation or retention. The suitable portion of the modified boundary alternative would be placed under a visual quality objective of preservation or retention under that alternative.

Under the unsuitable alternative, or unsuitable portion of the modified boundary alternative, various management practices could either impact or improve existing visual quality. Mitigation would provide for protecting visual qualities at an acceptable condition.

RECREATION

Under the suitable alternative an estimated maximum capacity for about 2070 persons at one time (PAOT) or 124,000 recreation visitor days (RVD) per year could be provided. The unsuitable alternative would provide for about 4,200 PAOT or 168,000 recreation visitor days per year. Current annual use is estimated at 15,300 visitor days which is 12 percent of the wilderness capacity. The modified boundary alternative would provide for an estimated 2,149 PAOT or 132,454 RVD per year maximum capacity. If managed for a more primitive wilderness experience the capacity would be reduced considerably.

Under Alternative 3, unsuitable, the study area would be managed for nonmotorized recreation under the Forest Plan Prescriptions. The area would accommodate approximately 168,130 recreation visitor days (RVD) annually and still meet the desired recreation experience and protect resource values. The current recreation use is about 9 percent of capacity. Alternative 2 would provide for larger capacities than Alternative 1 though less than the unsuitable alternative.

Although the State Comprehensive Outdoor Recreation Plan indicates a need for four-wheel drive and motorcycle opportunities, none of the alternatives provide for motorized recreation use. These opportunities are considered and provided elsewhere on the National Forest.

The suitable or suitable with modified boundary alternative would provide a wilderness experience which recognizes moderate use by visitors, particularly along the trails and at preferred undeveloped campsites. The unsuitable alternative provides Semiprimitive and Roaded Natural opportunities, although motorized recreation opportunity is not provided within the WSA. The Roaded Natural classification reflects the proximity of and heavy recreation use from outside influences along the WSA boundary which would be present in any alternative. Although the roaded natural classification occurs under the suitable as well, management would be for non-motorized recreation use under the Forest Plan.

NON-FEDERAL OWNED LANDS

Selection of the suitable alternative would place portions of two patented mining claims within the wilderness. This could be eliminated by a minor boundary adjustment. The modified boundary alternative would exclude those privately owned lands. As of midnight December 31, 1983, patents granted for claims in wilderness will be for the minerals only, unless discovery can be proved to have been made before the date of the Wilderness Act for lands which were designated as wilderness then, or before the dates of later wilderness designations when such lands are involved. Operations on patented claims within National Forest wilderness, where only the mineral rights are patented, are thus subject to direct environmental protection controls by the Forest Service and also by State agencies under applicable State laws and regulations.

The unsuitable alternative will have no effects on non-National Forest System lands.

TRANSPORTATION

The existing trails transportation system with approximately 25 miles of trail will remain essentially the same as it is now under any alternative, except for modifications necessary for management of the resources. If designated wilderness foot or horse travel would be cross country or by a low density trails system as provided in the Forest Plan Management Prescriptions.

Roads would not be developed under Alternative 1, suitable, or the suitable portion of Alternative 2, except as provided for by law if deemed necessary for access to existing rights.

Under the unsuitable (Resource Development) alternative, up to 60 percent of the WSA could be served by motorized access for vegetation manipulation to provide fuelwood, increase water yield, and improve wildlife habitat. The access would be closed to motorized public use when not needed for resource management activities in order to retain the nonmotorized recreation opportunity as required in the Forest Plan Prescriptions.

RANGE

Public Law 96-560, Section 108, specifically relates to grazing regulations applicable to National Forest wildernesses. Grazing is permitted in wilderness and where established will continue to be allowed.

Livestock use or management activities will not change significantly with either alternative. Effects will occur due to limitations on new use under the suitable alternative. Currently, there are no non-structural range improvements planned.

Under the suitable alternative, however, limitations on new use occur. Intensive management practices to increase capacity are not used.

SOCIAL EFFECTS

Neither the suitable nor unsuitable alternative is expected to have significant effects on the population, employment, or income in the HRU's, unless significant mineral resources were discovered and developed. Lifestyles as well are not expected to be altered.

ECONOMIC EFFECTS

As displayed in Table IV-B, resource values were assigned to timber, water, range, and recreation outputs. Wildlife benefits are included in the recreation visitor day 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.

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. Values are lower using the 7 1/8 percent discount rate because more emphasis is placed on immediate use of resources rather than future uses.

TABLE IV-B

ECONOMIC EFFICIENCY ANALYSIS OF BUFFALO PEAKS WILDERNESS STUDY AREA
 (ALL VALUES ARE IN MILLIONS OF REAL 1978 DOLLARS,
 DISCOUNTED AT 4 PERCENT AND 7 1/8 PERCENT)

<u>Resource</u>	<u>Suitable</u>	<u>Suitable with Boundary Modification</u>	<u>Unsuitable</u>	<u>Current Management</u>
<u>Outputs</u>				
Timber (MMBF)	0	1.3	3.0	0
Water Yield (MAF)	33.0	33.5	34.5	33.0
Rec-Wild. (MRVD)	124.2	71.3	0	0
Rec-Unsuit Disp. (MRVD)	0	61.1	168.1	168.1
Rec-Dev. (MRVD)	0	0	0	0
Range (MAUM)	1.8	1.8	1.8	1.8
<u>Discounted Benefits</u> <u>4% (MM\$)</u>				
Timber	0	0.6	1.4	0
Water Incr.	0	0.2	0.6	0
Rec-Wild.	21.6	12.4	0	0
Rec-Nonwild.	0	6.7	18.3	18.3
Range	0.4	0.4	0.4	0.4
TOTAL	22.0	20.3	20.7	18.7
<u>Discounted Costs</u> <u>4% (MM\$)</u>				
Operation & maint.	1.1	2.1	3.8	2.6
Gen. Admin.	0.2	0.4	0.8	0.5
Capital Invest.	0	0	0	0
TOTAL (PVC)	1.3	2.5	4.6	3.1
<u>Economic Measure (4%)</u>				
Total Discounted Benefits (PVB)	22.0	20.3	20.7	18.7
Total Discounted Costs (PVC)	1.3	2.5	4.6	3.1
Present Net Value	20.7	17.8	16.1	15.6
Benefit/Cost Ratio	16.92	8.12	4.50	6.03

TABLE IV-B
(Continued)

ECONOMIC EFFICIENCY ANALYSIS OF BUFFALO PEAKS WILDERNESS STUDY AREA
(ALL VALUES ARE IN MILLIONS OF REAL 1978 DOLLARS,
DISCOUNTED AT 4 PERCENT AND 7 1/8 PERCENT)

	<u>Suitable</u>	<u>Suitable with Boundary Modification</u>	<u>Unsuitable</u>	<u>Current Management</u>
<u>Discounted Benefits</u>				
<u>7 1/8% (MM\$)</u>				
Timber	0	0.4	0.9	0
Water Incr.	0	0.1	0.4	0
Rec-Wild.	13.7	7.9	0	0
Rec-Nonwild.	0	4.2	11.6	11.6
Range	0.3	0.3	0.3	0.3
TOTAL	14.0	12.9	13.2	11.9
<u>Discounted Costs</u>				
<u>7 1/8% (MM\$)</u>				
Operation & Maint.	0.7	1.3	2.4	1.7
Gen. Admin.	0.1	0.3	0.5	0.3
Capital Invest.	0	0	0	0
TOTAL (PVC)	0.8	1.6	2.9	2.0
<u>Economic Measure(7 1/8%)</u>				
Total Discounted Benefits (PVB)	14.0	12.9	13.2	11.9
Total Discounted Costs (PVC)	0.8	1.6	2.9	2.0
Present Net Value	13.2	11.3	10.3	9.9
Benefit/Cost Ratio	17.5	8.06	4.55	5.95

Resource values and costs used in the analysis are:

<u>Resource</u>	<u>Units</u>	<u>Value/Unit(\$)</u>
Timber	MCF	78.00
Water	Acre-foot	19.70
Recreation (Wilderness)	RVD	8.00
Recreation (Nonwilderness)	RVD	5.00
Range	AUM	10.50

WILDERNESS SUITABILITY OR UNSUITABILITY

The standards to be met by components of the National Wilderness Preservation System (NWPS) were established in the Wilderness Act of 1964. Forest Service policy requires that capability, availability, and need for wilderness be established prior to determining the suitability or unsuitability of an area for inclusion in the NWPS. These three criteria are discussed in turn below.

WILDERNESS CAPABILITY

Wilderness capability is analyzed without regard to either the need for more wilderness or the availability of the area for wilderness designation. It is determined by both the degree to which an area possesses the basic characteristics necessary for wilderness designation as well as the degree to which an area can be 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) characteristics or attributes; and (b) manageability. To indicate the degree to which an area possess wilderness attributes, the Wilderness Attribute Rating System was developed during RARE-II. Chapter III shows the rating elements and values for the Buffalo Peaks WSA as discussed below.

Both physical characteristics and manageability of the area were evaluated. The Wilderness Attribute Rating System (WARS) which was developed in RARE II to indicate relative wilderness quality, was reviewed for this report to consider the capability for wilderness. Buffalo Peaks was rated at 18 as described in Chapter III which was slightly below average for all RARE II areas in Colorado. The average for these areas recommended for wilderness in RARE II was 22.

The suitable alternative, if the area is designated as wilderness by Congress, would provide for the addition of 56,950 acres to the National Wilderness Preservation System. The relative wilderness quality as determined by the RARE II WARS rating is slightly below the average for all RARE II areas. A number of impacts on the natural integrity of the area were identified including roads, trails, old logging or timber use, plantations and mineral activity, only some of which were separable (see Figure IV-1). Overall influence of the impacts on natural integrity and apparent naturalness were both rated 5 on the scale of 1-7, where 7 is the most favorable. The potential to provide outstanding opportunities for solitude and a primitive and unconfined recreation were rated 4 and 5. In RARE II, all areas were considered Region-wide and ratings were adjusted to achieve uniformity in estimates. The Buffalo Peaks area received the overall rating of 18.

Alternative 2, suitable with boundary modification, would exclude most of the nonconforming features from the suitable area. The WARS Rating has not been recomputed for that portion. With nonconforming features excluded a higher rating would result.

Manageability (b) was evaluated using the following criteria:

- Forest Service 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 can be managed to maintain the wilderness character. Surface disturbances relating to mineral development for valid existing rights would be controlled by 36 CFR 228 Subpart A, regulations and the Forest Plan prescriptions.

- Size and shape of the area.

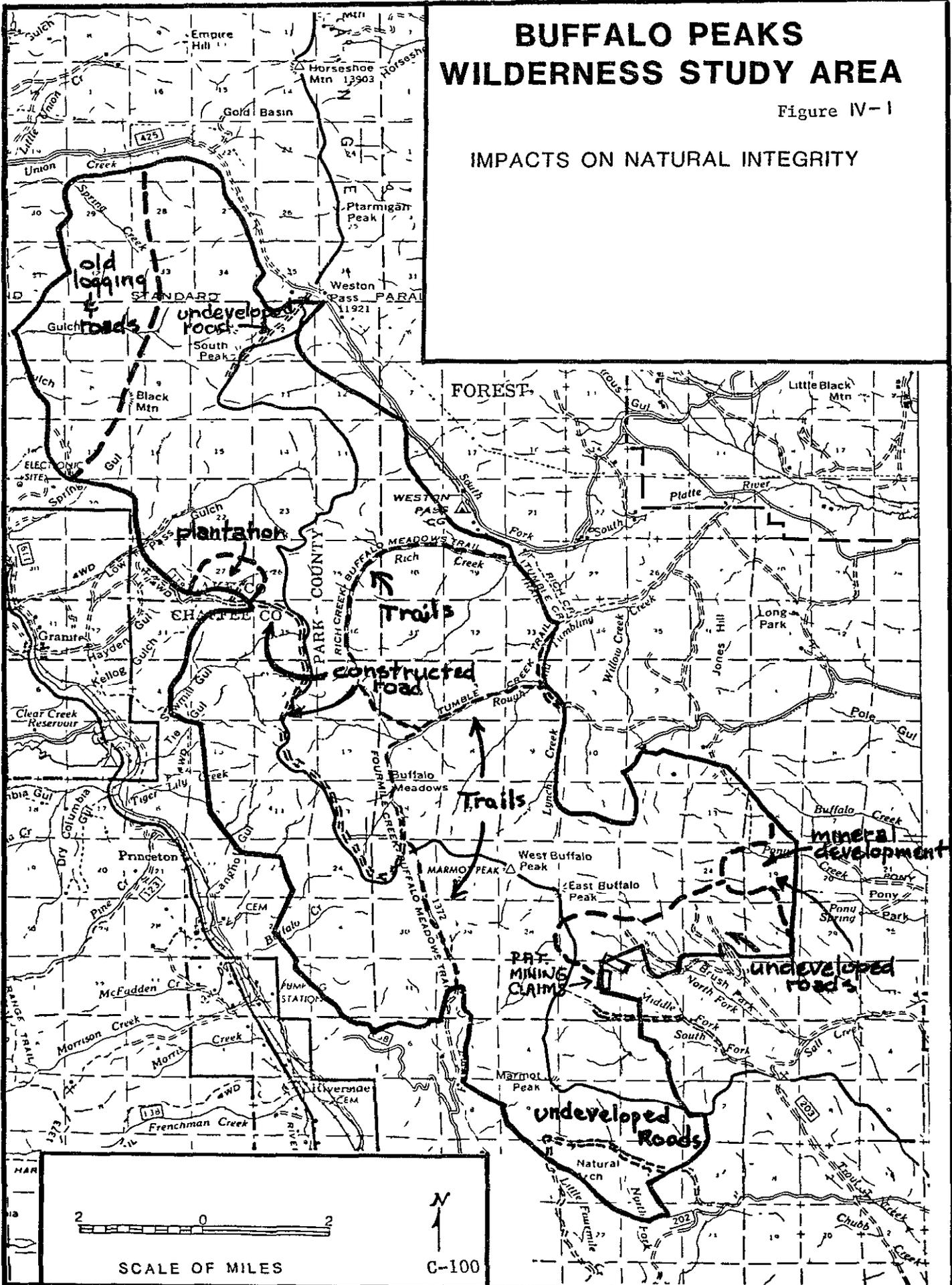
The Buffalo Peaks WSA contains 56,950 acres and is relatively compact. The boundary of the area is determined by natural features, as well as roads and past non-conforming uses. The boundary has been located on United States Geological Survey topographic maps and can be described and located on-the-ground. However, the boundary generally is located from point to point and does not always follow readily recognizable features or natural barriers such as divides or streams.

The area in many places would necessitate major boundary location and maintenance to prevent conflicts with other land management activities and uses.

BUFFALO PEAKS WILDERNESS STUDY AREA

Figure IV-1

IMPACTS ON NATURAL INTEGRITY



The modified boundary alternative contains 36,060 acres in a compact area. Boundaries would follow natural features recognizable on the ground to a greater degree than with the suitable alternative.

- Location relative to external influences.

There are no known current significant external impacts.

Influence from outside of the WSA, including sights and sounds from the Weston Pass Road on the north and U.S. Highway 24 and the Denver and Rio Grande Railroad to the west, influence the area for its wilderness qualities.

The boundary provides opportunities for transportation access and trailhead facilities for visitors coming to the area.

WILDERNESS AVAILABILITY

National Forest System Land 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.

- Existing Constraints and Encumbrances.

Existing mineral claims have potential to affect management under wilderness designation.

There are no mineral leases or lease applications in the WSA. Mineral rights are owned by others on about 250 acres.

- Incompatible Uses.

The WSA boundary can be located to avoid conflicts with some of the existing non-compatible uses. Alternative 2 excludes most of these conflicts.

- Effect of Wilderness Designation and Management on Adjacent Lands.

Management practices on the adjoining lands would not be altered significantly if the WSA is designated wilderness. Factors such as insect or disease buildup or wildfire spread to adjoining lands have not historically been a problem in the area. Management as wilderness allows for protection treatments where adjacent private land values may be threatened.

- 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.

Wilderness values in the Buffalo Peaks WSA include: The potential to provide the opportunity for a wilderness recreation experience capacity of up to 2,070 people at one time (PAOT) with an annual capacity of about 124,000 visitor days.

This capacity for recreation use with the suitable alternative will be less than the capacity with the unsuitable alternative. The wilderness capacity is estimated to be 74 percent of that for a nonwilderness allocation as indicated in Chapter II, Table-II-B.

Also included as a wilderness value is a degree of protection to natural ecosystems, and natural processes involving wildlife, water quality, and other resources.

The area contains several small mineralized zones with low moderate resource potential for locatable minerals. There is little or no indications of oil or gas, or geothermal energy resources in the study area. (USGS, MF-1628-A).

The suitable alternative would preclude potential projects designed to increase water yield by up to 1,500 acre-feet per year. The additional water yield is important for domestic and agricultural use. Although 1,500 acre-feet is an estimated potential it is unlikely that figure would be obtainable because of management constraints and mitigation required by the Forest Plan prescriptions.

The selection of the suitable alternative would preclude the use of the tentatively suitable forest land to help meet the demand for fuelwood in the local area. The unsuitable (Resource Development) Alternative would allow utilization of this resource.

Selection of the suitable alternative will allow natural ecological succession to occur but will not allow maintenance and improvement of wildlife winter range and habitat diversity by vegetation treatment measures or utilization for wood products.

Competing wildlife needs include maintenance and improvement of winter range habitat and maintenance of habitat diversity. Habitat improvement and maintenance are required to meet the projected wildlife needs on the Pike and San Isabel National Forests and the DOW's southeast region. The need for winter

range management is increasing due to the encroachment by private land development on winter range located on private land.

The Buffalo Peaks WSA contains wildlife habitat, timber, and water resources, and potentially contains mineral resources capable of contributing to the HRU's county goals and objectives which would be available under the unsuitable alternative.

WILDERNESS NEED

There must be clear evidence of current or future public need for additional designated wilderness in the general area involved.

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 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.

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

- Visitors to designated wilderness will increase in number.
- Some undeveloped lands provide opportunities for 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.

The Pike and San Isabel National Forests contain 257,420 acres of wilderness. This amounts to 11 percent of the Forests' area. In addition, other wildernesses with approximately 298,800 acres are adjacent to the Forest.

Chaffee, Lake, and Park Counties currently contain about 247,000 acres of wilderness which is 11 percent of the counties' area. Addition of the entire Buffalo Peak WSA would increase this to about 304,000 acres or about 13 percent.

Sixteen percent of the National Forest System Lands in Lake County are currently classified as wilderness. Chaffee County contains 12 percent wilderness and Park County 9 percent.

No unique or unusual landforms or ecosystems would be added to the National Wilderness Preservation System if this WSA is designated as wilderness.

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

Wilderness visitor information was gathered in 1981 for the first time for the five wildernesses on the Pike and San Isabel National Forests, established on December 22, 1980, by Public Law 96-560. User data are available for the wilderness that existed prior to the Colorado Wilderness Act. This information is summarized as follows:

TABLE IV-C

WILDERNESS USE INFORMATION

Name of Wilderness	USE (MRVD's)	AREA (acres)	RVD/AC/YR
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	74,250	0.61
Maroon Bells	211.3	174,060	1.21

This use information indicates that the existing wilderness is receiving generally low to moderate use. Some areas of heavy concentration occur and additional capacity may be available, particularly with management to maintain the desired physical, social, and managerial settings.

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

While the Buffalo Peaks WSA has good capacity to provide opportunities for unconfined outdoor recreation experiences, it is recognized that this capacity is not in short supply in the surrounding area. Wilderness designation is not necessary to preserve this characteristic under the proposed management prescription in the Forest Plan.

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. Buffalo Peaks WSA would continue to be managed for nonmotorized recreation in a semiprimitive setting as provided in the Forest Plan in either alternative. Adequate opportunity is already well represented.

The Statewide Comprehensive Outdoor Recreation Plan and Lake, Chaffee, and Park County Comprehensive Plan goals to not address a need for or against additional wilderness in this area.

- Ability of biotic species to compete with people and projects.

No threatened or endangered plant or animal 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.

- Provide for preservation of unique landform types and ecosystems.

TABLE IV-D

REPRESENTATIVE ECOSYSTEMS AND LANDFORMS IN THE BUFFALO PEAKS WSA
 COMPARED TO REPRESENTATIVE NEARBY WILDERNESSES

<u>Ecosystems</u>	<u>Buffalo Peaks</u>	<u>Lost Creek</u>	<u>Holy Cross</u>	<u>Mt. Massive</u>	<u>Collegiate Peaks</u>
Alpine	High	Moderate	Moderate	High	Very High
Spruce/fir	High	High	High	High	High
Douglas-fir	Moderate	High	Low	Low	Moderate
Aspen	Moderate	High	High	Low	Moderate
Lodgepole Pine	Low	Low	Moderate	High	Moderate
Ponderosa Pine	Moderate	High	-	-	Low
Mountain Meadows and grass	Moderate	High	Moderate	Moderate	High
<u>Landforms</u>					
Peaks over 13,000 feet	Low	Low	Moderate	Moderate	High
Slide Rock/Out- crops	Moderate	High	High	High	High
Steep slopes/ Sharp Canyons	Moderate	Moderate	High	High	High

Key: Estimated occurrence

High - Abundant
 Moderate - Common
 Low - Some occurrence

There are no unique landforms or ecosystems as identified in RARE-II in Buffalo Peaks WSA that are not represented in other wilderness in the vicinity. Table III-A illustrates the occurrence of various vegetation and land features represented in the Buffalo Peaks WSA in comparison with nearby wildrness.

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

There would be no direct effects on long-term productivity or renewable resources resulting from either alternative under consideration. The increased possibility of minerals activity under the unsuitable alternative would increase the possibility of long-term effects on the productivity of the land. However, most surface resource effects caused by mining could be adequately mitigated under Forest Service Surface Protection Regulations (36 CFR 228).

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

A suitability recommendation for designation of this WSA as wilderness is not viewed as an irreversible or irretrievable commitment of resources, since Congress has the authority to designate wilderness and also has the authority to declassify wilderness, should this be needed.

The removal of mineral resources is viewed as an irreversible and irretrievable commitment because these are non renewable resources. At the present time, the wilderness study designation (Public Law 96-560) provides that minerals exploration and development activities within this WSA shall be administered according to the laws generally applicable to the National Forest System. 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. Under a suitable recommendation, if designated wilderness by Congress, the WSA would be withdrawn from all forms of mineral activities under the general mining and leasing laws. Under the unsuitable alternative, heavily impacted areas would be considered irretrievable. Other resource opportunities such as timber production and water increases, and the benefits associated from them, would be irreversibly foregone under wilderness designation.

Under the Unsuitable Alternative (No Action), however, the wilderness character would be maintained until Congress determines otherwise. Activities under the Unsuitable Alternative (Resource Development) could result in an irreversible commitment of the wilderness resources.

ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED

SUITABLE ALTERNATIVE

- The area would be withdrawn from mineral entry and leasing with potential of lost returns to the local communities.
- There will be a decrease in total recreation capacity (RVD's) because of the increased solitude required for wilderness recreation.
- Wildlife habitat improvement opportunities would be lost.

SUITABLE WITH BOUNDARY MODIFICATIONS ALTERNATIVE

- The adverse effects listed above for the suitable alternative would apply for that portion of the WSA considered suitable under this alternative.
- There is a potential for irreversible loss of wilderness character on those portions of the area considered unsuitable under this alternative.

UNSUITABLE ALTERNATIVE

- There is a potential for irreversible loss of wilderness character through potential mining activities, roads, and other developments with heavy impact in the area. The Unsuitable Alternative, however, would retain the wilderness characteristics until Congress acts on the proposal.

CONFLICTS WITH OTHER GOVERNMENT AGENCY PLANS

There are no known direct conflicts with plans of other government agencies under any of these alternatives. Responses of other agencies to the draft are found in Chapter VI of the FEIS for the Forest Land and Resource Management Plan.

WILDERNESS STUDY AREA REPORT
SPANISH PEAKS
SAN ISABEL NATIONAL FOREST
HUERFANO AND LAS ANIMAS COUNTIES
COLORADO

CHAPTER 1

INTRODUCTION AND INDEX TO FOREST PLAN EIS

The information presented in this Spanish Peaks Wilderness Study Area section of Appendix C was used to provide the data that appears in the main body of the Final Environment Impact Statement (FEIS) for the Pike and San Isabel National Forests Land and Resource Management Plan (Forest Plan). For your convenience the following index indicates where in the Forest Plan FEIS certain information about the WSA is displayed.

<u>Forest Plan FEIS Chapter Title</u>	<u>Chapter-Page</u>
Purpose and Need	I-2
Alternatives Including the Proposed Action	II-28
Affected Environment	III-72
Environmental Consequences (wilderness suitability or unsuitability)	IV-38
Consultation with Others	VI-1

CHAPTER II

ALTERNATIVES

OVERVIEW

The evaluation of the Spanish Peaks Wilderness Study Area was mandated by Congress in the Colorado Wilderness Act (Public Law 96-560) of December 22, 1980. The WSA will be managed to preserve the existing wilderness character until Congress acts on the proposal.

ALTERNATIVES CONSIDERED IN DETAIL

Alternatives, including the matching Forest Plan Alternatives are displayed in Figure II-1 and Table II-A.

Additional alternatives showing possible boundary modifications were not considered in detail. Significant changes within the Study Area were not considered practical or warranted and were not generally supported by public response. The study area boundary had extensive public review throughout the RARE-II study as well as during Forest planning. Further reduction in the size of the area, while eliminating some of the non-conforming features, would not substantially improve suitability.

SUITABLE FOR WILDERNESS DESIGNATION ALTERNATIVE - ALTERNATIVE 1

This alternative is the same as Alternative C of the Forest Plan FEIS.

This alternative would result in a recommendation to Congress that the entire 19,570 Spanish Peaks Wilderness Study Area is suitable for inclusion in the National Wilderness Preservation System. The WSA would be managed for semiprimitive wilderness opportunities in an essentially natural condition 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 DESIGNATION (NO ACTION) ALTERNATIVE - ALTERNATIVE 2

This alternative is the same as Alternative B of the Forest PLAN FEIS.

This alternative, would result in a recommendation to Congress that the entire Spanish Peaks Wilderness Study Area is unsuitable for inclusion in the National Wilderness Preservation System.

Under this alternative, 15,770 acres would be managed under Management Area Prescription 3A, and 3,800 acres would be managed under Prescription 6B.

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

In areas managed under Prescription 6B, emphasis is on livestock grazing. Range condition is at or above satisfactory level. Range condition is maintained through vegetation treatments, livestock management, and regulation of other resource uses. Conflicts between livestock and big game are resolved in favor of livestock.

UNSUITABLE FOR WILDERNESS DESIGNATION (PROPOSED ACTION AND RESOURCE DEVELOPMENT) ALTERNATIVE - ALTERNATIVE 3

Like Alternative 2, Alternative 3 would result in a recommendation that all of the Spanish Peaks Wilderness Study Area is unsuitable for inclusion in the National Wilderness Preservation System. Alternative 3 is the same as Alternatives A and D of the Forest Plan FEIS. It tends to emphasize resource development to produce commodity outputs. Under this alternative 1,170 acres would be managed under Management Area Prescription 2B, 15,800 acres under Prescription 3A, and 2,600 acres under Prescription 7A.

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 semiprimitive nonmotorized recreation in roaded and unroaded areas. Opportunities such as hiking, horseback riding, hunting, and cross country skiing are available. Season or permanent restrictions may be applied to provide seclusion for wildlife.

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 semiprimitive non-motorized depending on the travel management scheme for the area.

A variation of Alternative 3 which places no emphasis on wood fiber production has also been considered. This variation is the same as Alternative E of the Forest Plan FEIS. Under this variation, 1,170 acres would be managed under Management Area Prescription 2B, and 18,700 acres would be managed under Prescription 3A.

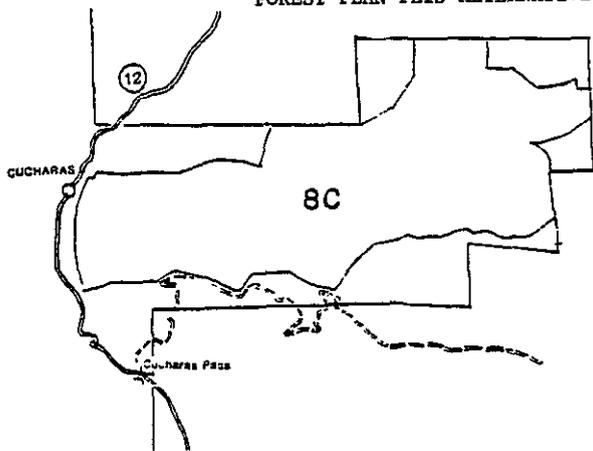
TABLE II-A
FOREST PLAN FEIS ALTERNATIVES

Management Area	Description, Management Prescription Emphasis	Alternatives			
		<u>C</u>	<u>A&D</u>	<u>B</u>	<u>E</u>
8C	Semiprimitive wilderness opportunity, essentially natural	19,570	0	0	0
2B	Roaded natural recreation on or near roads	0	1,170	0	1,170
3A	Semiprimitive nonmotorized recreation emphasis	0	15,800	15,770	18,400
6B	Emphasis on forage for livestock	0	0	3,800	0
7A	Emphasis on wood fiber production	0	2,600	0	0

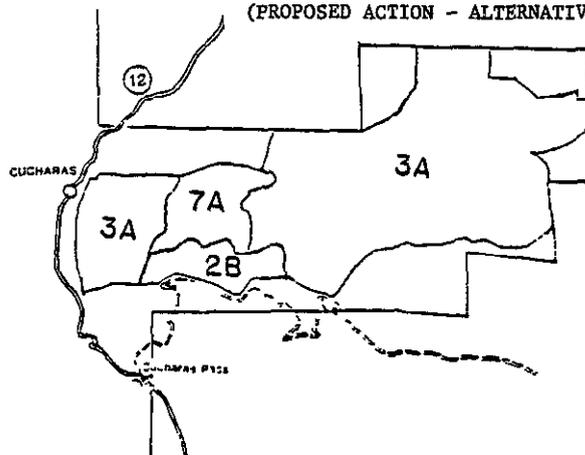
Management Area Prescriptions are fully described in Chapter III, Management Direction, Forest Plan.

SPANISH PEAKS WILDERNESS STUDY AREA ALTERNATIVES

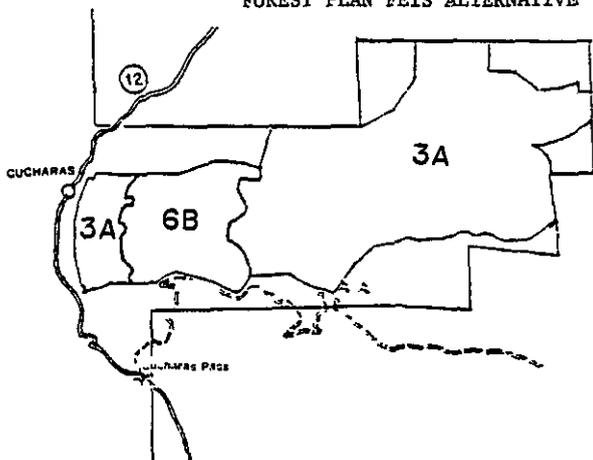
ALTERNATIVE 1
FOREST PLAN FEIS ALTERNATIVE C



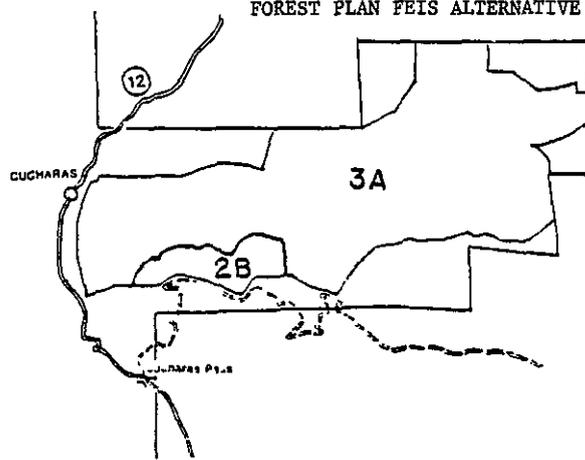
ALTERNATIVE 3 (RESOURCE DEVELOPMENT)
FOREST PLAN FEIS ALTERNATIVE A & D
(PROPOSED ACTION - ALTERNATIVE A)



ALTERNATIVE 2 (NO ACTION)
FOREST PLAN FEIS ALTERNATIVE B



ALTERNATIVE 3 (RESOURCE DEVELOPMENT)
FOREST PLAN FEIS ALTERNATIVE E



SUMMARY OF ENVIRONMENTAL AND ADMINISTRATIVE CONSEQUENCES

Table II-B shows the expected environmental and administrative consequences under each alternative. These consequences include the physical and social environments and reflect the anticipated future scenarios under each alternative.

TABLE II-B

SUMMARY OF ENVIRONMENTAL AND ADMINISTRATIVE CONSEQUENCES

<u>Resource</u>	Alternatives	
	1 (<u>Suitable</u>) Alt C	2 & 3 (<u>Unsuitable</u>) No Action - Alt B Res. Dev. - A, D & E
<u>Wilderness</u>		
Area of wilderness	19,600 Acres	-0-
Potential <u>loss</u> of wilderness character:		
Natural Integrity	No Change (with Management)	Low/Increased
Apparent Naturalness	None	Low/Increased
Solitude	Low	Low
Primitive Recreation Opportunity	No Change	No Change
Supplemental Attributes	No Change	None
Scenic Value	Low	Low
<u>Minerals</u> (including oil and gas)		
Likelihood of mineral exploration and development	(withdrawn)*	No Change
Mineral leasing effects		
Geophysical Investigation	9,866 Acres	17,650 Acres
Leasable	-0- Acres	19,600 Acres (0-No Action)
No Leasing (Will be (withdrawn))	19,600 Acres	-0- Acres
<u>Timber</u>		
Tentatively suitable for timber production	12,700 Acres	12,700 Acres
Growing Stock Volume	60.5 MMBF ^{1/}	60.5 MMBF ^{1/}
Current annual allowable sale quantity (slopes less than 45 percent)	-0-	0.4 MMBF ^{1/}

*Subject to valid existing rights.

TABLE II-B (continued)

<u>Resource</u>	<u>Alternatives</u>	
	1 (<u>Suitable</u>) Alt. C	2 & 3 (<u>Unsuitable</u>) No Action - Alt B Res. Dev. A, D, & E
<u>Timber (Continued)</u>		
Long term sustained yield (LTSY)		
Productive Forest land - All Slopes	-0-	1.8 MMBF ^{1/} (0 - No Action)
Slopes less than 45 percent	-0-	0.6 MMBF ^{1/} (0 - No Action)
<u>Water Quantity</u>		
Water Quantity increase/year	-0-	500 Ac-Ft. ^{2/} (0 - No Action)
<u>Water Uses</u>		
Effects on existing water uses	None	None
<u>Range</u>		
Forage production	289 AUM's ^{3/}	289 AUM's ^{3/}
<u>Wildlife</u>		
Improve winter range	-0-	2,500 Acres (0 - No Action)
Maintain or improve diversity	-0-	12,700 Acres (0 - No Action)
<u>Recreation</u>		
Recreation Opportunity Classes		
Roaded Natural	-0-	-0-
Semi-Primitive	-0-	-0-
Motorized		
Nonmotorized	19,570 Acres	19,570 Acres
Primitive	-0-	-0-
Area closed to ORV Use ^{4/}	19,570 Acres	19,570 Acres
Annual Recreation Use at Capacity	505 PAOT ^{5/} 30,357 RVD's ^{6/}	505 PAOT ^{5/} 36,449 RVD's ^{6/}

TABLE II-B

<u>Resource</u>	Alternatives	
	1 (<u>Suitable</u>) Alt. C	2 & 3 (<u>Unsuitable</u>) No Action Alt. B Res. Dev. A, D, & E
<u>Land Ownership</u>		
Change in priority for acquisition of private inholdings	Significant Change	No Change

- Notes:
- 1 MMBF = Million Board Feet
 - 2 Ac-ft. = Acre Foot
 - 3 AUM's = Animal Unit Months
 - 4 Per Travel Management Plan
 - 5 PAOT = People-At-One-Time
 - 6 RVD's = Recreation Visitor Days

SUMMARY OF WILDERNESS SUITABILITY EVALUATION

Chapter IV describes in detail the wilderness suitability evaluation conducted for the Spanish Peaks WSA. A conclusion of suitability or unsuitability considers the area's capability, availability, and need as wilderness.

IS THE AREA CAPABLE OF WILDERNESS DESIGNATION?

Both the physical characteristics and manageability of the area were evaluated. The Wilderness Attribute Rating System (WARS) rating for Spanish Peaks was 20 for RARE II. Based upon additional knowledge of the area and a review of the WARS rating, it was determined that the rating should be 16 as described in Chapter III.

The WSA contains patented land tracts, patented and unpatented mining claims, access roads, and external impacts which tend to severely affect the ability of the Forest Service to manage the area as an enduring wilderness resource. Much of the boundary was adjusted during RARE II to eliminate as much of the private land as feasible. Other private land and impacts were not separable. Although the WSA has moderate wilderness attributes, it is questionable if these attributes can be maintained on the entire area because of outstanding privately owned rights.

IS THE AREA AVAILABLE FOR WILDERNESS?

The availability analysis considered the value and benefit of a wilderness resource compared to the value and competing demands for other resources that would be foregone under wilderness designation. Significant findings are as follows:

Past activity and estimated potential indicates that the area has potential capability of producing mineral resources.

Designation of the area by Congress as wilderness would withdraw the area from mineral entry and leasing, but would permit the exercise of existing rights, subject to regulations that govern access to mining claims and leases and surface disturbing operations. (Title 36, Part 228 CFR). The exercise of existing rights could result in activities such as road building or mine development not compatible with maintenance of the wilderness environment. A nonwilderness conclusion, if confirmed by Congress, will result in the mineral resources being managed the same as on other National Forest lands.

Some of the area is considered to have moderate to high potential for both locatable and leasable minerals. Existing mines and mineral patents as well as the current lease application activity tend to support this estimate of potential.

Vegetation management is necessary for an integrated pest control program to help reduce insect and disease occurrence on the area and adjoining lands.

Spanish Peaks WSA has the potential for increasing water yield.

Wildlife habitat in the Spanish Peaks WSA needs improvement and maintenance of winter range and habitat diversity to meet the projected wildlife demands on the Pike and San Isabel National Forests and the Colorado Division of Wildlife Southeast Region.

Although Colorado SCORP recognizes a need for motorized use opportunity, this area is not conducive to this class of recreation use.

IS THE AREA NEEDED FOR WILDERNESS?

Wilderness is not readily available to the population of southeastern Colorado. However, through the land management planning process it was determined that this need could be better met by the Sangre de Cristo and Greenhorn Mountain WSA's.

The Statewide Comprehensive Outdoor Recreation Plan does not reflect a need for additional wilderness in this area. There is no apparent conflict between either the suitable or unsuitable alternatives and the goals of the Huerfano and Las Animas County Master and Development Plan goals.

The WSA is not needed to improve the representation of landforms and ecosystems in the National Wilderness Preservation System. Although the Spanish Peaks WSA is within the Spanish Peaks National Natural Landmark, wilderness classification is not necessary to the protection of the associated geologic features.

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.

CHAPTER III

AFFECTED ENVIRONMENT

The suitability or unsuitability of the Spanish Peaks Wilderness Study Area (WSA) for addition to the National Wilderness Preservation System is a function of the physical, biological, social and economic environment within and surrounding the WSA. This chapter describes the various environmental factors relating to this suitability determination. Chapter IV describes the effects on the environment which would result from implementation of the alternatives.

PHYSICAL SETTING

PHYSIOGRAPHY

The Spanish Peaks WSA is dominated by the Spanish Peaks which are twin mountains of volcanic origin. Elevation ranges from 8,400 feet at the lowest point in the study area to 13,626 feet at the top of West Spanish Peak, with the East Spanish Peak being lower with an elevation of 12,683 feet. Slopes are very steep, in excess of 70 percent, on the peaks but becoming more gradual near the boundaries and in the western portion of the study area. A northeast-southwest trending divide separates the study area into two portions, with the portion north of the divide comprising approximately 75 percent of the total area. The Spanish Peaks occur as an island separated from the Sangre de Cristo Range by the Cucharas River and prevail as a prominent feature within the relatively flat plains country.

GEOLOGY AND SOILS

The Spanish Peaks WSA includes the East and West Spanish Peaks. They were formed by the intrusion of volcanic material into sedimentary formations uplifting the peaks and filling the resulting vertical cracks, which now show as a unique system of dikes radiating outward from the peaks like spokes of a wheel. The dikes form spectacular, free standing walls from 1 to 100 feet thick, up to 100 or more feet high, and extending up to 14 miles. The peaks and surrounding area were included in the National Register of National Natural Landmarks in January 1977 due to this geologic phenomenon.

Soil fertility is classed as low on 57 percent of the area, and moderate over the remaining area. Erosion hazard is classed high or moderate over most of the area. Soil erosion and suspended sediment production are at acceptable levels. Neither of these are expected to increase significantly with proper management.

Mass movement potential is moderately high on 45 percent of the area.

VEGETATION

On the lower slopes ponderosa pines, Douglas-fir, and white fir are present with some Gambel oak (oakbrush). At the high elevations bristlecone pine, Engelmann spruce, and subalpine vegetation occur. Above timberline, alpine vegetation is found on the steep rocky slopes culminating in the two peaks. Approximately 73 percent of the area is forested with the remaining nonforested area occurring as grasslands, alpine vegetation, talus slope, rock outcrops, and oakbrush.

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° Fahrenheit in January to 65° Fahrenheit 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, wet conditions with high winds in a few hours.

Annual precipitation varies and is influenced by topography. The average annual precipitation ranges from 28 inches at the higher elevations to 19 inches at lower elevations. Forty to 50 percent of the annual precipitation occurs as snow. Thunderstorms are common through July and August.

RESOURCES AND SUPPORT ELEMENTS

WILDERNESS

Wilderness Attributed 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, outstanding opportunities for solitude, and outstanding 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. The possible rating could be from 4 to 28 with 28 the most favorable for wilderness.

The attributes of natural integrity and apparent naturalness for the Spanish Peaks WSA were rated moderate based on physical developments, evidences of human, and mining developments including the Bulls Eye Mine and access roads to them along with undeveloped roads and trails. Outstanding opportunities for solitude was rated moderate based on screening, terrain, and size. Much of the area is above timberline and offers little screening. The area is relatively narrow, being about 12 miles long and generally about 2 to 3 miles wide, which tends to decrease the screening from outside influences. Opportunities for a primitive and unconfined recreation experience are considered only moderate. Although there are a few streams within the WSA, they are

small and not significant for water associated recreation. Hiking, horseback riding, undeveloped camping, hunting, sightseeing, and nature study are the most significant opportunities. Extended camping trips or horse pack trips of several days are not commonly undertaken because of the WSA's limited size. Challenge is limited to hiking in steep terrain.

This rating is summarized as follows:

	<u>Rating</u>
Influence of impacts on natural integrity	4
Influence of impacts on apparent naturalness	4
Outstanding opportunities for solitude	4
Opportunities for primitive and unconfined recreation	4

Rating scale of 1 to 7 with 7 the most favorable for wilderness.

TOTAL RATING 16

In addition to the attribute 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

The Spanish Peaks WSA lies within a special geologic feature which is an occurrence of dikes radiating outward from the Spanish Peaks as described later in this chapter. The system of dikes is recognized as a National Natural Landmark. Based on this and the scenic value, the overall supplemental rating for the WSA was 4, of a possible 5 or outstanding.

Geographic Distribution of Wilderness

There is only one wilderness in the vicinity of the Spanish Peaks WSA. This is the Great Sand Dunes Wilderness administered by the National Park Service. Figure III-1 shows the relationship of this WSA to existing wildernesses within and adjacent to the Pike and San Isabel National Forests. Within 150 miles are the wildernesses as shown on Table III-B. Together, these areas offer a wide variety of recreation opportunity, terrain, vegetation types, and scenic quality.

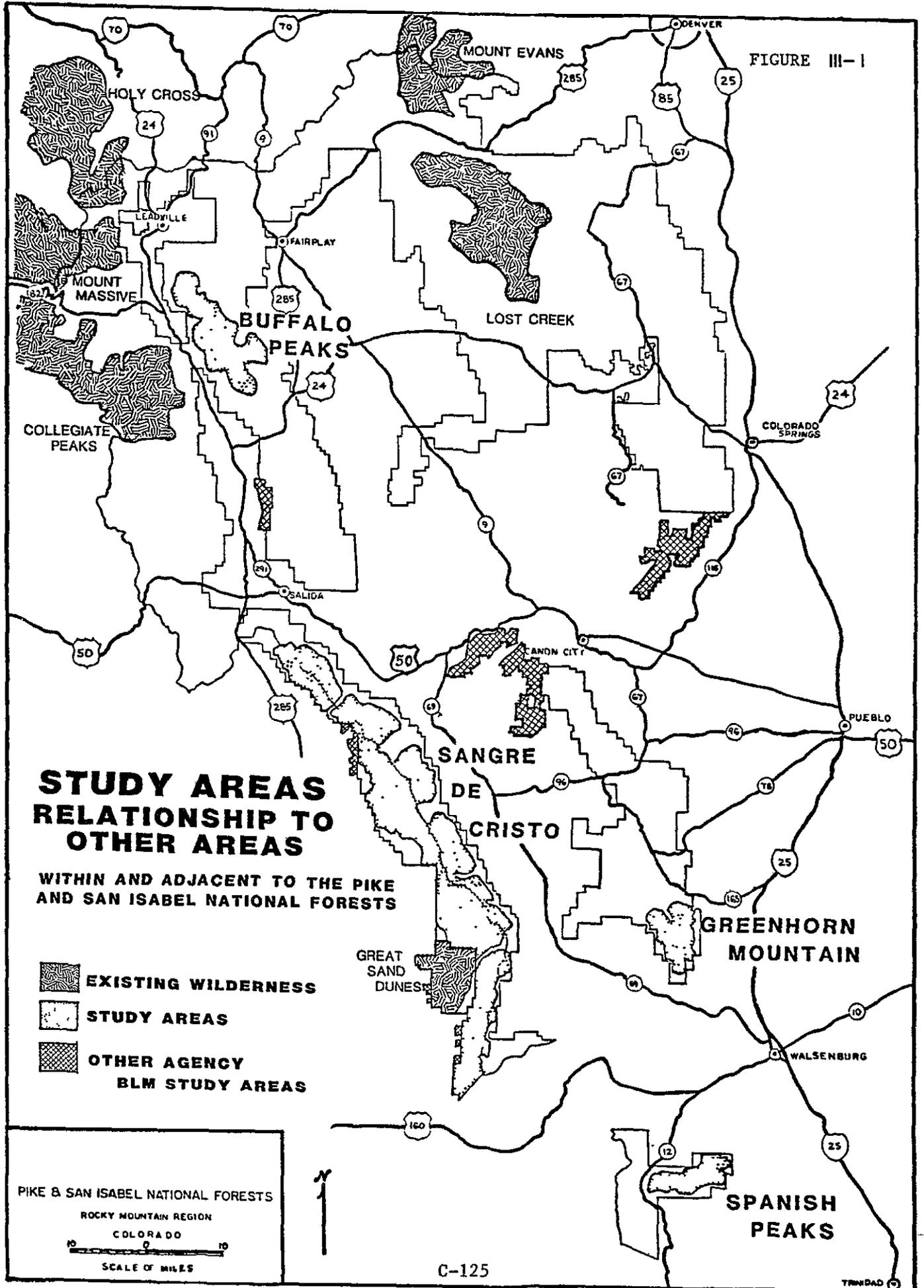
TABLE III-A

WILDERNESS WITHIN 150 MILES OF THE SPANISH PEAKS WSA

<u>Wilderness</u>	<u>Pike and San Isabel National Forests</u> (Net Acres)	<u>Other National Forests</u> (Net Acres)	<u>Other Agency</u> (Net Acres)
<u>Within 50 Miles</u>			
Great Sand Dunes (NPS)	-0-	-0-	33,450
Latir Peak		20,000	
Sub Total		20,000	33,450
<u>Within 100 Miles</u>			
La Garita	-0-	108,486	-0-
South San Juan	-0-	133,463	-0-
Weminuche	-0-	463,224	-0-
Cruces Basin		18,000	
Pecos		223,333	
Wheeler Peak		19,661	
Sub Total		966,167	
<u>Within 150 Miles</u>			
Collegiate Peaks	81,450	78,450	-0-
Lost Creek	106,000	-0-	-0-
Mount Massive	26,000	-0-	-0-
Chama River Canyon		50,260	
San Pedro Park		41,132	
Dome		5,200	
Sub Total	213,450	175,042	
	TOTAL	213,450	1,161,209
			33,450

TOTAL WILDERNESS = 1,408,109 ACRES

FIGURE III-1



MINERALS

The Spanish Peaks Wilderness Study Area has several old mines within the boundary. Small veins of gold, silver with some copper, and lead occurs in fissure veins around West Spanish Peak in metamorphosed sedimentary rocks. Vanderwilt (1947) noted the veins also contain pyrite, sphalerite, and siderite. There are several prospects on West Spanish Peak, but the Bull's Eye Mine was the most prominent. Mine production was limited to 1908 when 168 ounces of gold and 1,176 ounces of silver were mined (Vanderwild, 1947). The Bull's-Eye Mine on the northern slope between the east and west Spanish Peaks has been actively mined intermittently over the years. A four-wheel drive road extends from the boundary to the mine. Placer gold was recovered in the Wahatoya Creek and on the tributaries of Apishapa River on West Spanish Peak. Recovery was limited in sampling conducted by the U.S. Bureau of Mines for the Spanish Peaks Wilderness Study Area report. The joint report by the U.S. Geological Survey and the U.S. Bureau of Mines was prepared for the WSA. Coal deposits have been identified adjacent to but outside the study area boundary on the southeastern side. A gold and silver mine was operated on the southern slope of the area before 1938. This mine, accessible by an old wagon road, is now inactive. Approximately 28 percent of the area has high or moderate potential for locatable minerals, and approximately 72 percent has low potential for locatable minerals. There are 15 pending oil and gas lease applications covering about 14,274 acres (73 percent) of the Spanish Peaks WSA as shown on Figure III-2. The majority of the area has a low potential for leasable minerals.

Table III-B and the minerals potential map, Figure III-3, shows mineral information derived as a part of the Forest planning process and based on available information and geology of the area. A U.S.G.S. mineral survey has been completed for the area. (See Appendix I of the Forest Plan)

TABLE III-B
MINERAL POTENTIAL

	<u>Acres (thousands)</u>
Total Area	19.6
Known reserves or producing sites.	0
Moderate to high potential for locatable minerals.	5.4
Moderate to high potential for leasable minerals.	0
Low potential for locatable minerals.	14.2
Low potential for leasable minerals.	19.6
Mineral rights outstanding.	.4

TIMBER

The Spanish Peaks Wilderness Study Area includes approximately 19,600 acres, of which 65 percent is forest land capable of producing timber products, as shown on Table III-C. Approximately 31 percent of the tentatively suitable forest land is on slopes less than 45 percent and suitable for logging with conventional logging systems. The spatial location of these areas is shown on Figure III-4.

TABLE III-C
FOREST LAND CLASSIFICATION

<u>Classification</u>	<u>Total Area</u>
Total Area	19.6 (thousand acres)
Tentatively Suitable Forest Land	12.7
Tentatively Suitable Conventional Logging Slopes less than 45%:	3.9
Tentatively Suitable Slopes greater than 45%:	8.8
Not Suitable:	1.6
Nonforested and Other Unsuitable:	5.4

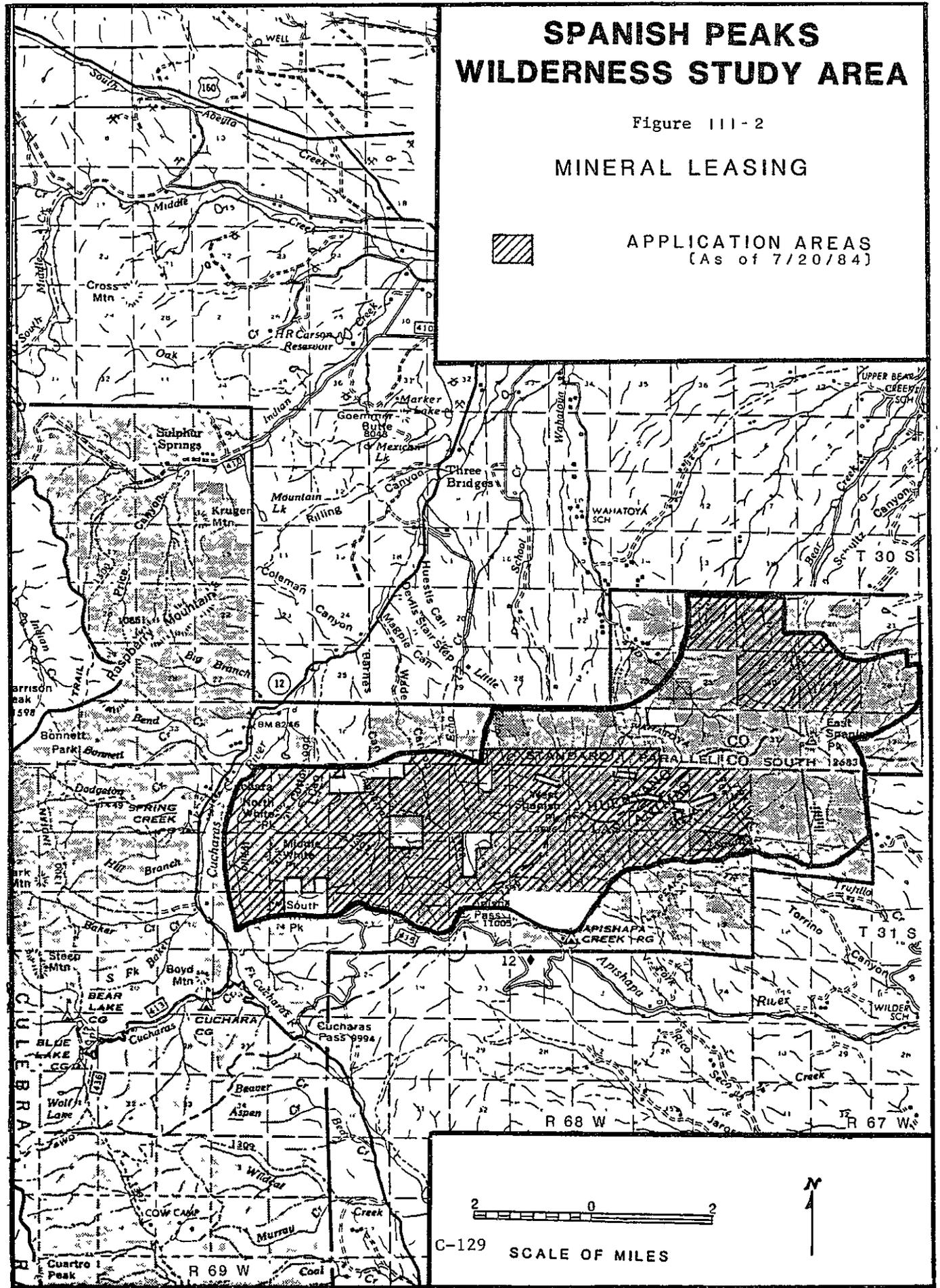
SPANISH PEAKS WILDERNESS STUDY AREA

Figure III-2

MINERAL LEASING



APPLICATION AREAS
(As of 7/20/84)

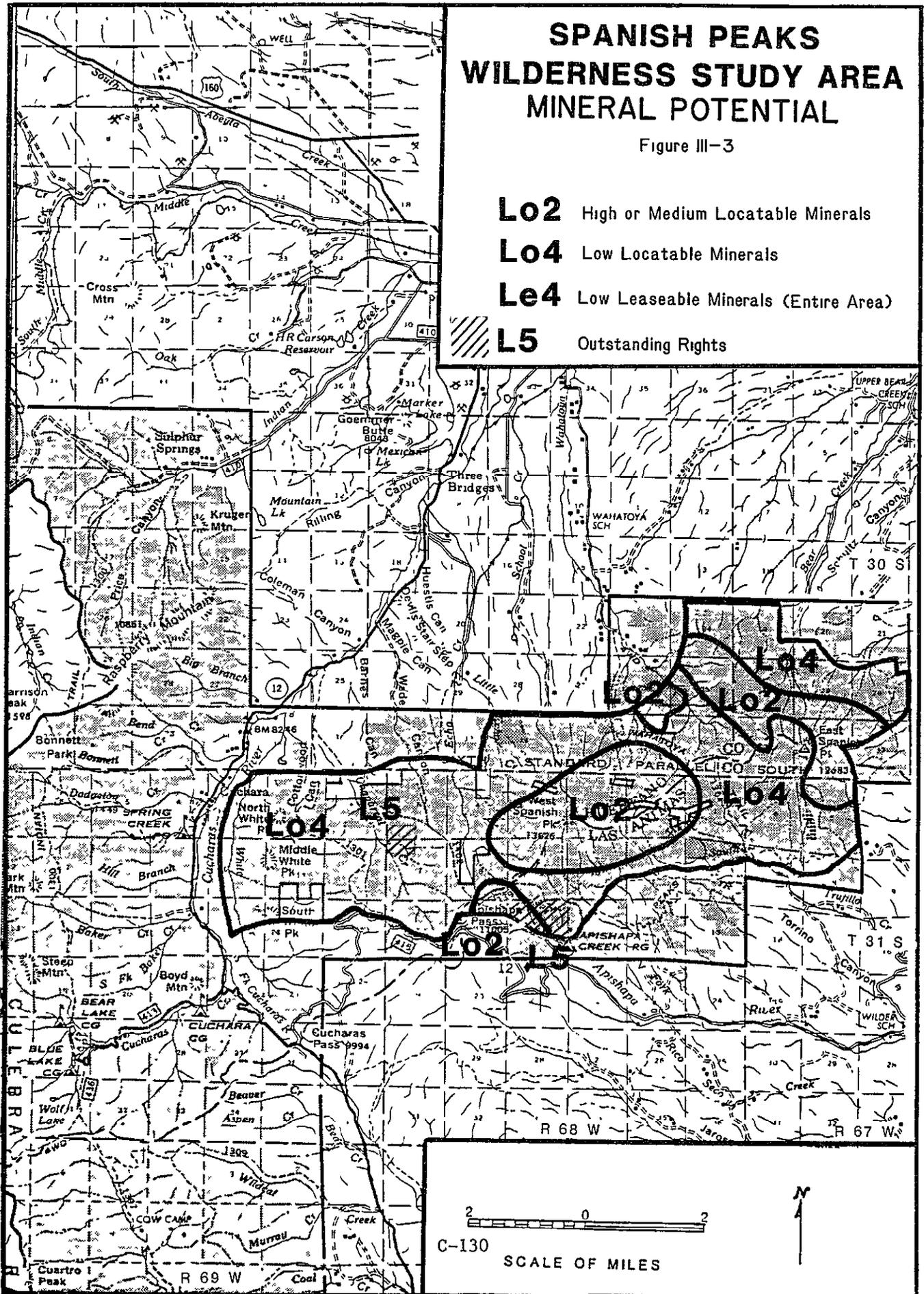


C-129 SCALE OF MILES

SPANISH PEAKS WILDERNESS STUDY AREA MINERAL POTENTIAL

Figure III-3

- Lo2** High or Medium Locatable Minerals
- Lo4** Low Locatable Minerals
- Le4** Low Leaseable Minerals (Entire Area)
-  **L5** Outstanding Rights



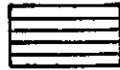
C-130

SCALE OF MILES

SPANISH PEAKS WILDERNESS STUDY AREA

Figure III-4

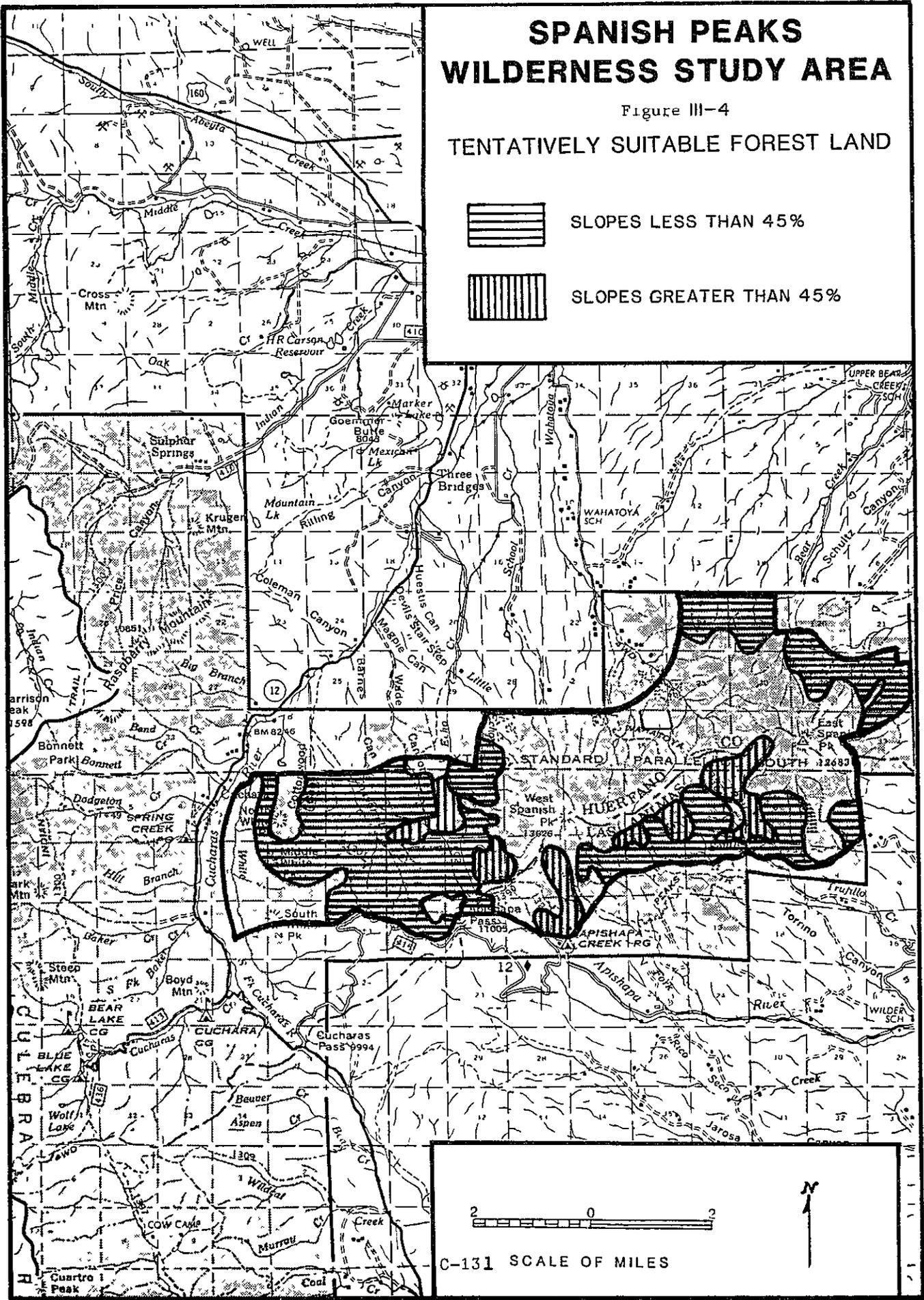
TENTATIVELY SUITABLE FOREST LAND



SLOPES LESS THAN 45%



SLOPES GREATER THAN 45%



C-131 SCALE OF MILES

The timber is evenly divided between mature (sawtimber) and immature (poletimber, seedlings/saplings) size classes. Much of the pole-size material is also mature, but stagnation or low inherent productivity has prevented it from attaining sawtimber dimensions. Aspen, Engelmann spruce, ponderosa pine, Douglas-fir, and lodgepole pine are the commercial forest types present in the area. The lodgepole pine area is extremely limited (150 acres).

Bristlecone pine, limber pine, and several nonforest types (Gambel oak, montane meadow, New Mexico locust, alpine tundra, etc.) also occur in the area.

Little of the area has been logged in the past. Minor removals for local needs (posts, poles, house logs, fuelwood) have occurred, but the predominance of steep slopes and inaccessible area have discouraged large-scale logging.

The current (based on current growth) annual allowable sale quantity is 107,000 cubic feet (351,000 board feet) for capable forest land on slopes of 45 percent or less. Growing stock volume is 60.5 million board feet.

The long term sustained yield capacity (based on a managed forest) is 550,000 cubic feet (1,765,000 board feet) annually for the total area of tentatively suitable forest land. Of this amount, 177,000 cubic feet (561,000 board feet) pertains to capable forest land on slopes less than 45 percent. This material could be in the form of sawlogs, fuelwood, or other roundwood products.

PROTECTION

Air Quality.

Air quality is considered to be excellent over the WSA. The WSA is designated as a Class II area under Section 162(b) of the Clean Air Act.

Fire.

The WSA does not have a high incidence of fire occurrence, though potential for large wildfires is present.

Forest Pest Management.

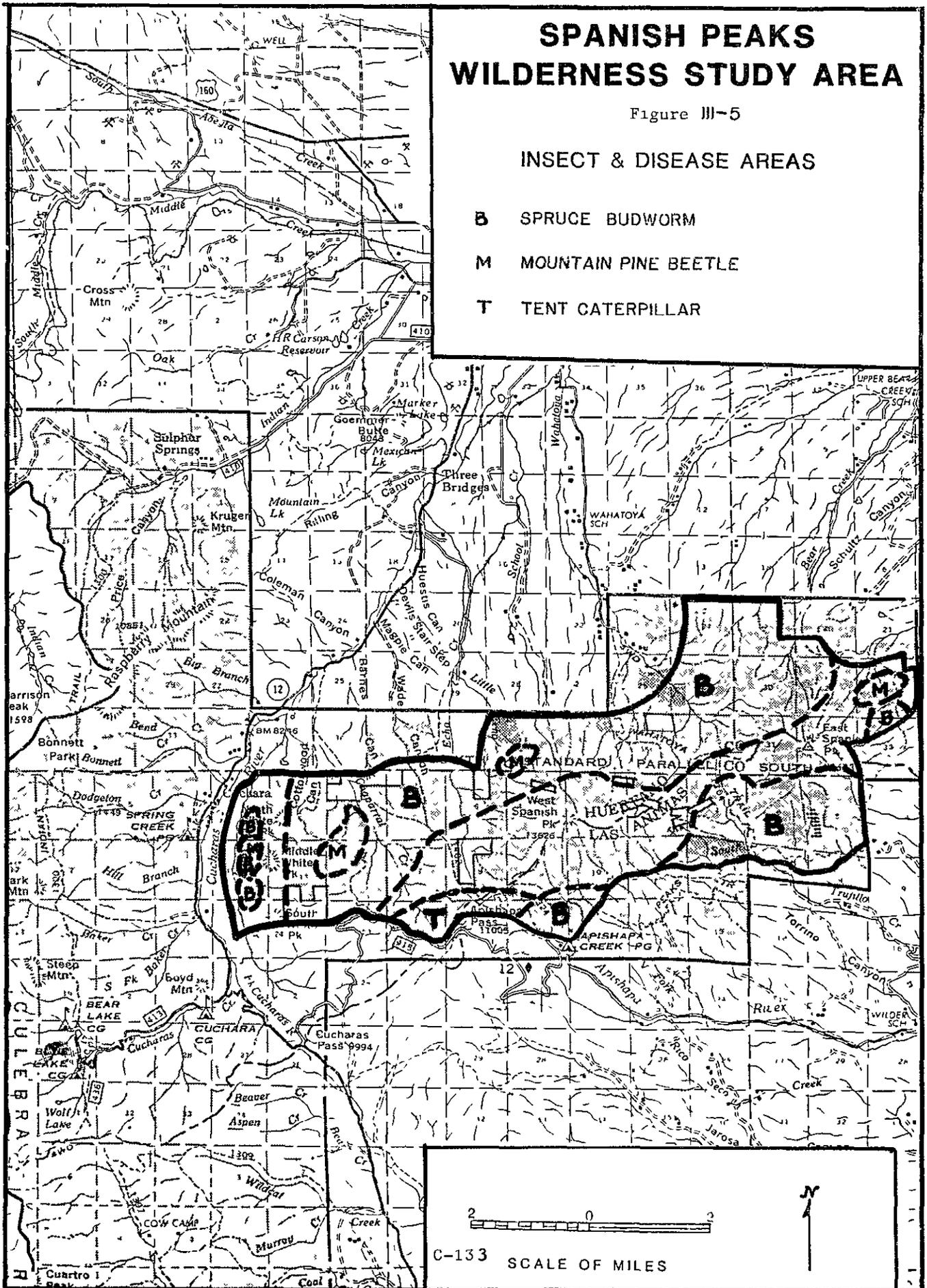
Western spruce budworm defoliation of Douglas-fir and white fir stands has been especially severe in the Spanish Peaks area. Mortality is now occurring in many stands and the outbreak shows no signs of imminent abatement. Defoliation to varying degrees in aspen stands by the western tent caterpillar has occasionally occurred, causing concern of local residents and property owners, but is not a persistent or widespread threat to the long term growth of aspen stands in the area. See Figure III-5. The proximity and intermingled nature of private lands in relation to the WSA requires close coordination of integrated pest management activities with private land owners.

SPANISH PEAKS WILDERNESS STUDY AREA

Figure III-5

INSECT & DISEASE AREAS

- B** SPRUCE BUDWORM
- M** MOUNTAIN PINE BEETLE
- T** TENT CATERPILLAR



C-133 SCALE OF MILES

HYDROLOGY AND WATER QUALITY

The Spanish Peaks study area lies within two watersheds. The north half of the study area is within the Spanish Peaks watershed. The main streams within this area are Wahatoya Creek, Echo Creek, Chaparral Creek, and White Creek. The south half of the study area lies within the Apishapa River watershed.

Streams within the study area are classified as A-type streams. A-type streams are characterized by steep gradients (3 percent plus), coarse, large bed and bank materials, low sediment production, limited fisheries habitat and stable channels. Steep, narrow channels limit riparian habitat to areas immediately along the stream banks.

The 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. Water quality data indicated that water quality is above the limits established by the state.

The water production of this area is slightly below the average for the Forest. The study area produces about .4 acre-feet of water per acre. The average for the Pike and San Isabel National Forests is .7 acre-feet of water per acre.

There are no water diversions in the WSA. The water is of high quality, and used for wildlife, recreation, and conservation. Downstream uses include agricultural and domestic purposes.

The current water yield is estimated to be about 8,820 acre-feet per year. There is a potential to increase this yield to about 9,600 acre-feet per year through vegetation treatment in spruce-fir and lodgepole vegetation occurring at the 9,000 feet elevation zone.

WILDLIFE

Most of the wildlife species found on the Pike and San Isabel National Forests also exist in the Wilderness Study Area. The management indicator species which commonly occur are pine marten, elk, mule deer, and northern three-toed woodpecker.

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, bristlecone pine, and oak. The relative abundance of these habitat types is shown in Table III-D.

The areas surrounding the study area are typically low elevation habitats such as ponderosa pine, pinon/juniper, oak, and other mountain shrublands.

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	L
Rock	H
Aspen	M
Lodgepole Pine	L
Ponderosa Pine	M
Oak	L
Bristlecone Pine	M

Habitat Abundance Key

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

The WSA rates moderate to high in habitat diversity. It provides winter range for deer and potentially for bighorn sheep as shown in Table III-E. (Acreages may overlap as the species may use the same range.) The location of these areas is illustrated on Figure III-6.

TABLE III-E

AREA OF DEER AND BIGHORN SHEEP WINTER RANGE

<u>Species</u>	<u>Total Area (thousand acres)</u>
Deer	2.5
Bighorn Sheep	1.0

VISUAL RESOURCE

The Spanish Peaks constitute an exceptional scenic resource to the southern Colorado mountain area. The conifer covered slopes and high elevations are a distinct contrast to the surrounding sweeping, treeless plains to the north and east.

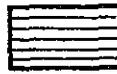
SPANISH PEAKS WILDERNESS STUDY AREA

WILDLIFE WINTER RANGE

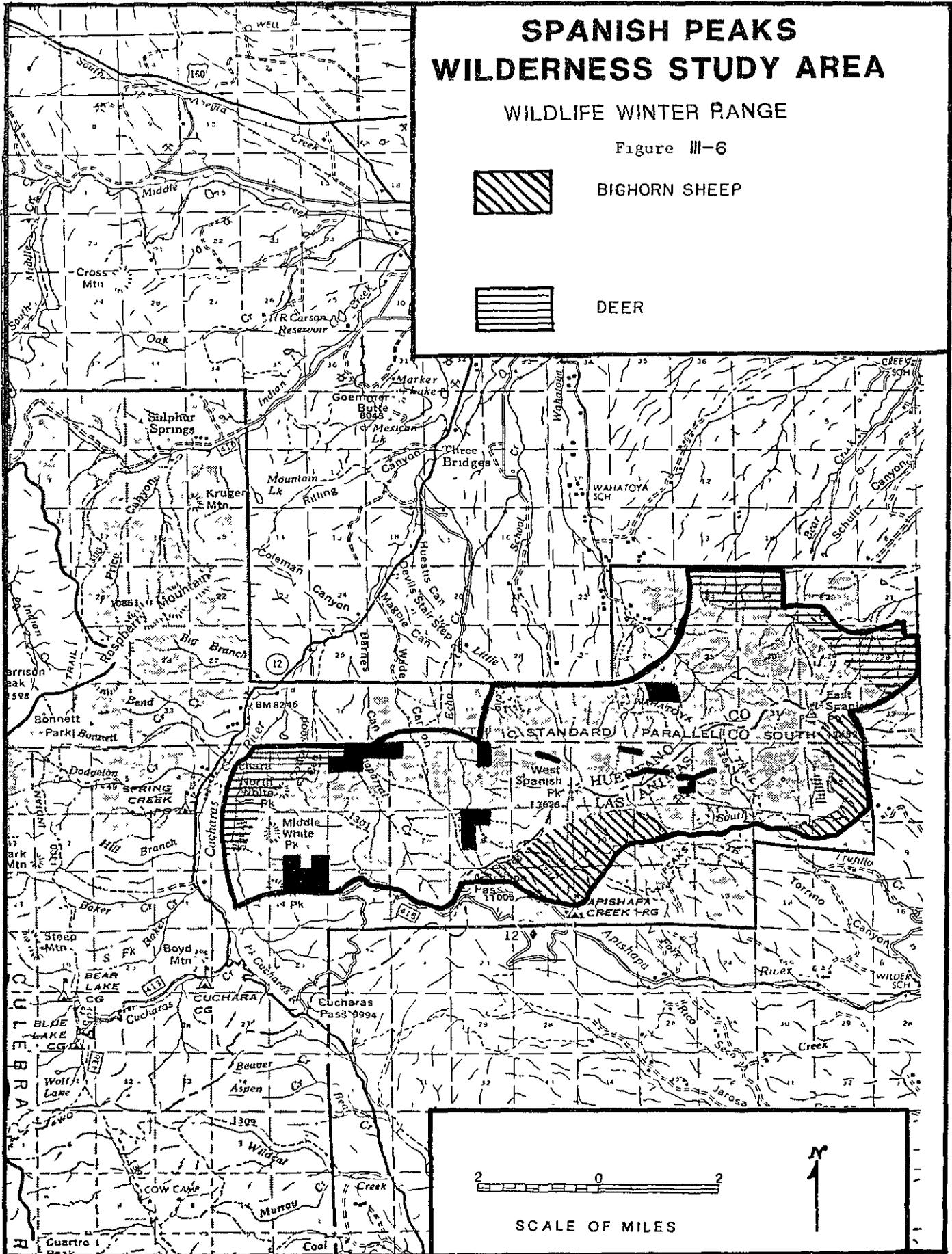
Figure III-6



BIGHORN SHEEP



DEER



Twin peaks tower over 6,500 feet above the existing 6,000 foot elevation in the high plains of southeastern Colorado. They stand isolated from the backdrop of the Sangre de Cristo Range, which emphasizes the effect of their height. They become a visual focal point.

The peaks can be seen from all directions and are most easily viewed from Interstate 25 and the Walsenburg, La Veta area.

These peaks are widely recognized for their highly diverse igneous rocks and structures. The large radial dike system adds a distinctly unique character to this landscape. These igneous dikes stand as impressive, relatively straight, vertical walls which reach heights of 100 feet and widths ranging from 1 to 100 feet. The reddish brown color of these dikes adds another dimension of contrast to the surrounding tones of beige, sage, and dark green. The dikes add an unusual element of form, line, and light reflectivity to the visual character of the Spanish Peaks.

The visual variety class of the WSA includes 11,520 acres of Class A, (outstanding) and 8,050 acres of Class B, (common) and is shown on the Variety Class Map, Figure III-7.

RECREATION

The Spanish Peaks WSA offers opportunities for hiking, backpacking, horseback riding, hunting, and nature study. In the winter, cross-country skiing, and snowshoeing opportunities are available. Many visitors enjoy hiking to the summits of the two peaks. The area includes a portion of the Spanish Peaks National Natural Landmark, which was designated to recognize the geological formations of dikes radiating from the peaks. See Figure III-8.

Recreation use is generally confined to trails ascending to the peaks. Most of this hiking use is of a day use nature as relatively short duration visits.

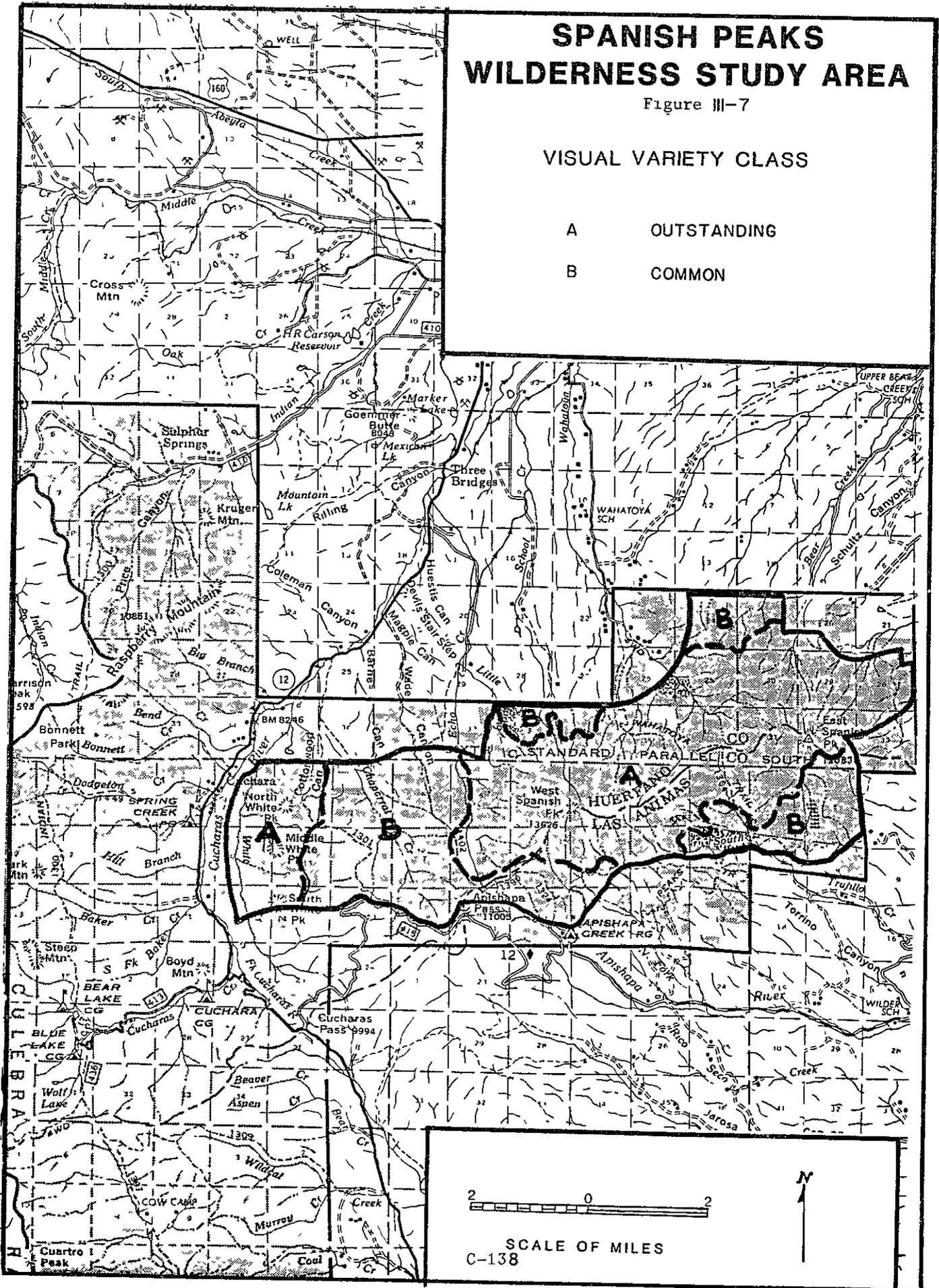
The narrow shape of the area reinforces the day use activities, as opposed to extended stays. Visitors who climb the peaks for the most part camp at the trailhead areas or enter from private lands outside the boundary.

SPANISH PEAKS WILDERNESS STUDY AREA

Figure III-7

VISUAL VARIETY CLASS

- A OUTSTANDING
- B COMMON



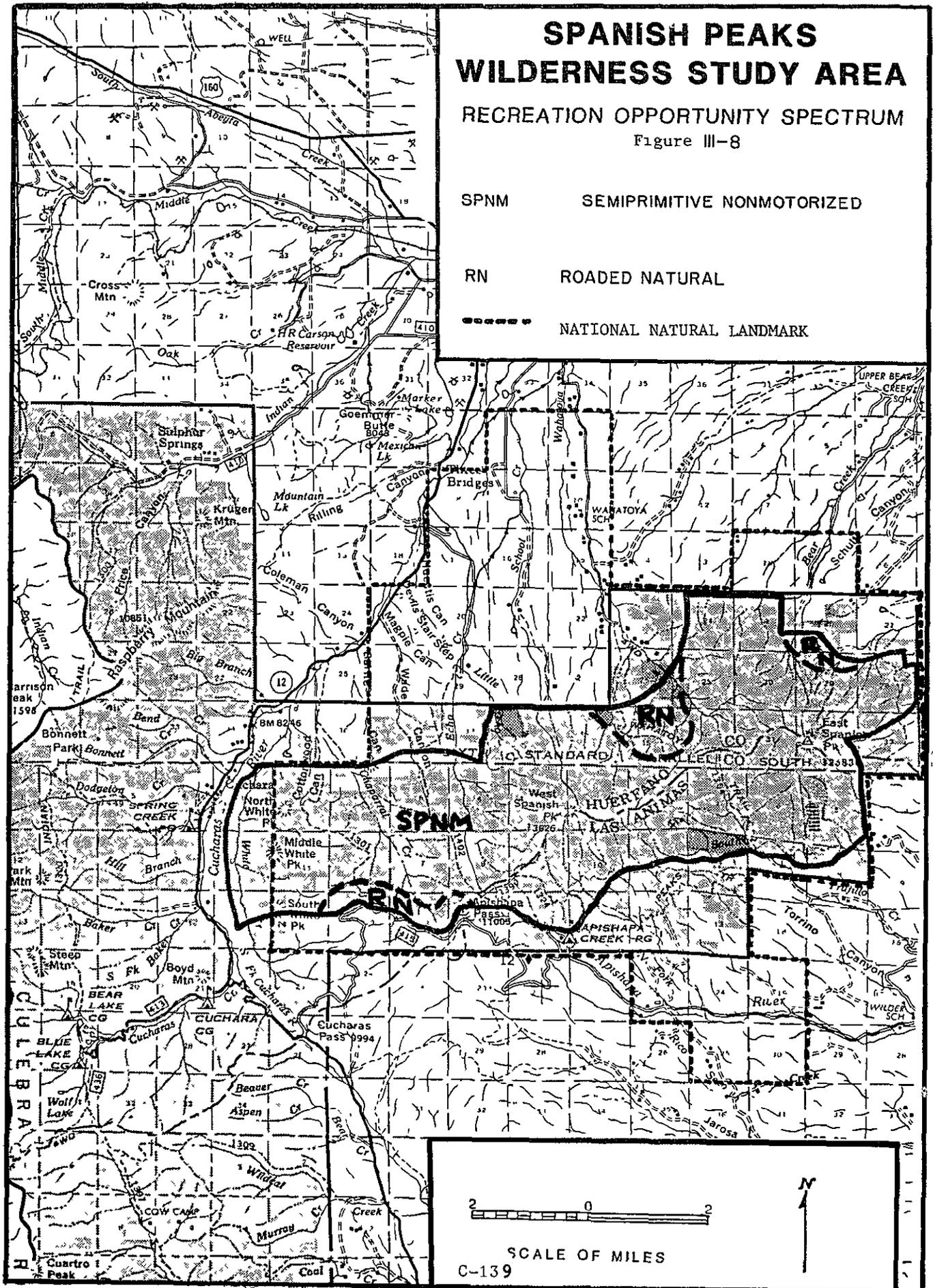
SPANISH PEAKS WILDERNESS STUDY AREA

RECREATION OPPORTUNITY SPECTRUM
Figure III-8

SPNM SEMIPRIMITIVE NONMOTORIZED

RN ROADED NATURAL

———— NATIONAL NATURAL LANDMARK



Current recreation use was estimated to be 10,100 visitor days in 1981. This was comprised of 8,100 visitor days for various dispersed non-motorized activities, 1,800 visitor days for hunting, and 200 visitor days for fishing. Fishing is confined to short stretches of Wahatoya Creek and White Creek where they leave the WSA. Fishing is not considered a significant recreation opportunity in the WSA.

The Recreation Opportunity Spectrum Classification shows 18,670 acres (95 percent) in the semiprimitive nonmotorized category, and 900 acres in the roaded natural category, (5 percent) as shown on Figure 10. The roaded natural areas receive this classification due to the proximity of roads and other developments near the boundary, not because of actual use within the area. In actual management, the entire area is considered semiprimitive nonmotorized.

Recreation use is increasing in the area. Visitors from Texas, Oklahoma, and western Kansas come to the Spanish Peaks region to escape the summer heat. Although the Colorado SCORP shows only small increases in projected population for their Region 7, increasing trends from outside will tend to increase demands at a greater rate than county growth indicates.

CULTURAL RESOURCES

The Spanish Peaks themselves have been inventoried as potentially historically significant because of their prominence as a reference point or landmark by early settlers and travelers throughout the region. Intensive surveys have not been conducted to identify specific sites. None are known to exist currently.

NON-FEDERAL LAND

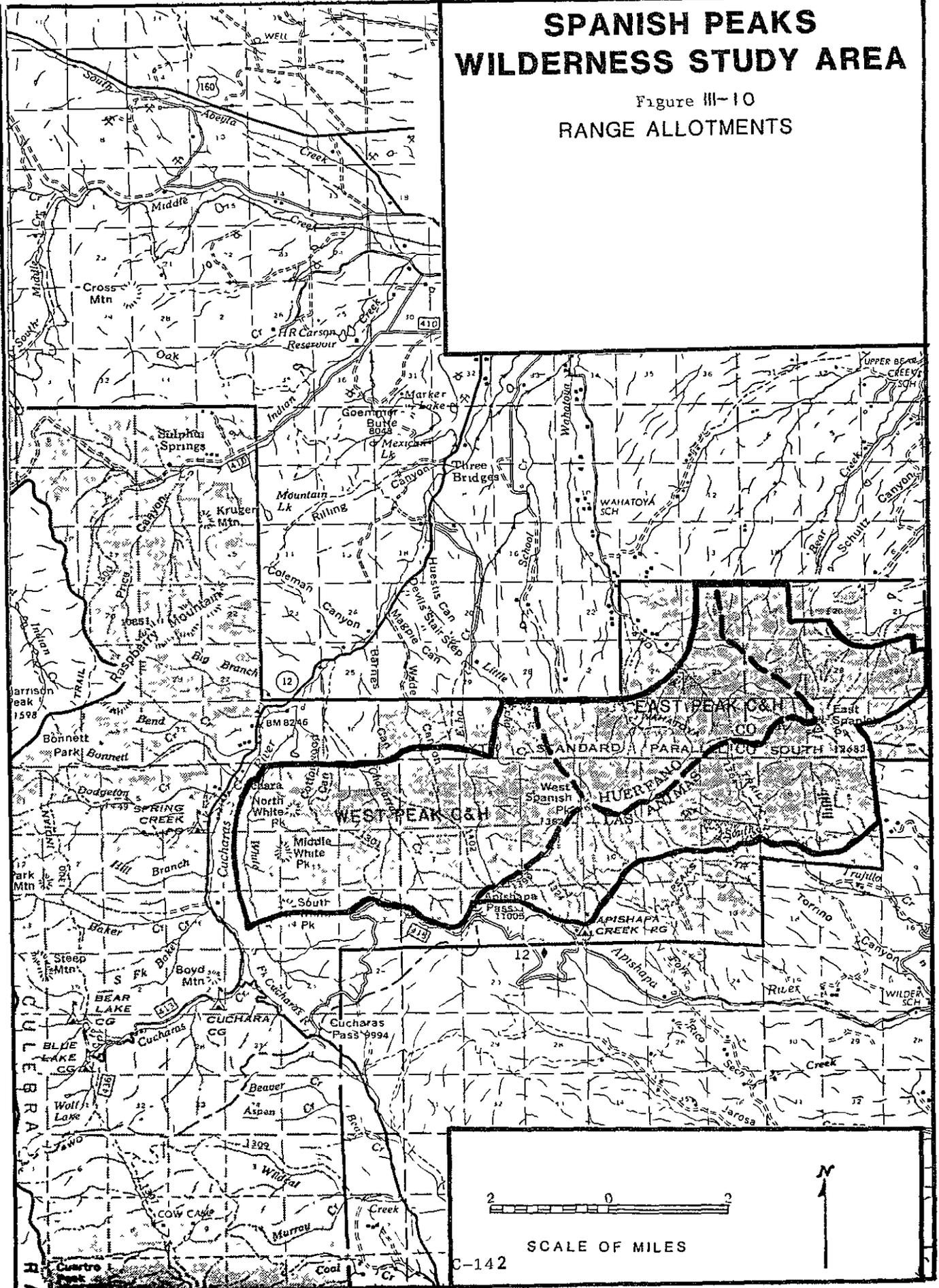
The Spanish Peaks Wilderness Study Area contains 870 acres of private lands within the boundary, as shown on Figure III-9. These private lands occur in five tracts plus several patented mining claims. One of the tracts is currently used for a dude ranch operation and contains a log cabin, stable, and picnic facilities. Another tract is used as part of a cattle operation and has four-wheel drive roads for salting cattle.

TRANSPORTATION

The Spanish Peaks Wilderness Study Area is accessible via State Highway 12 which extends from Highway 160 about 11 miles west of Walsenburg over Cuchara Pass and back to Interstate 25 at Trinidad. Although State Highway 12 provides the main access to the general vicinity, it does not directly adjoin the WSA. The Apishapa Pass (Cordova Pass) road provides access along the southern boundary of the study area. Several trails extend into the WSA from this road on the southwest. Access along the north and east is controlled by private land ownerships.

SPANISH PEAKS WILDERNESS STUDY AREA

Figure III-10
RANGE ALLOTMENTS



Within the WSA there are about 18 miles of trails providing access to the area and to the peaks. Roads provide access to the Bulls Eye Mine on the north side and four-wheel drive access to private land tracts on the west. The WSA is currently managed for nonmotorized recreation.

RANGE

The Spanish Peaks study area contains portions of two existing livestock allotments (Figure III-10) with a permitted use of approximately 138 animal unit months per year. There is additional potential suitable range with an estimated capacity of 151 animal unit months for a total existing and potential estimated capacity of 289 AUM's.

SOCIAL SETTING

The Spanish Peaks Wilderness Study Area lies within Huerfano and western Las Animas Counties which make up the Spanish Peaks Human Resource Unit (HRU) used to describe the economic and social setting. The HRU's are delineated to assist in designing management actions which would be responsive to local issues, conditions, and needs. (Chapter III, Social Setting, FEIS)

POPULATION

Population in this HRU is relatively low at about 21,000 persons. Trends indicate it will remain low and possibly decrease slightly to about 19,000 by the year 2010. Lack of employment appears to be the primary factor holding down the population. Coal mining was once a major activity but has declined and is not expected to recover in the very near future. The population consists of about 45 percent Spanish Americans. Income associated with the low employment opportunities is relatively low.

Tourist trade through the summer, along with increasing winter recreation opportunities, is helping to offset other declines in employment.

LIFESTYLES

The ranching and agricultural related industries dominate the resident's lifestyles. However, during the summer an influx of recreation residence owners move into the La Veta, Cucharas, and Stonewall areas. The high percentage of Spanish Americans, however, continues to influence the HRU's lifestyles with their adherence to traditional cultural activities and customs.

ATTITUDES, BELIEFS, AND VALUES

Attitudes, beliefs, and values reflect the ethnic origins of the population. Attitudes are generally conservative. Family ties are strong and closely tied to the land. The people care and are concerned about what happens to the land and its resources.

SOCIAL ORGANIZATIONS

Social activities are strongly tied to family interests. With low populations in the region, the people are close knit and aware of local events. County and local officials are personally known and respond directly to the people's needs.

POPULATION AND LAND USE

Residents of the HRU benefit from a number of resources from the National Forest lands, though their direct dependence is not high for the most part. Much of the WSA is not directly accessible and is, therefore, not in immediate demand for forest products. Overall benefits, however, come from recreation use, wildlife, water yield, and forage. Development pressures are increasing in the surrounding vicinity. Demand for recreation residence lots is increasing, mineral and oil and gas exploration continues, and need for wood products including fuelwood are becoming increasingly important.

ECONOMIC SETTING

Agriculture and livestock are two of the principal industries that provide an economic base for the area surrounding Spanish Peaks. A recreation-oriented economy has been growing which includes mountain subdivision development and the Panadero Ski Area.

Huerfano and Las Animas Counties have been economically depressed for a number of years. Census data from 1980 reported average per capita income for Huerfano County at \$5159 and Las Animas County at \$4033 compared to a State average of \$7999. Unemployment as well, has been high.

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. 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

The suitable alternative would recommend adding the 19,570 acre area to the National Wilderness Preservation System. The WSA would provide an area with a moderate degree of wilderness integrity and influence from human activities. The WARS rating reflects the relative quality.

The unsuitable alternatives recommend against adding the WSA to the National Wilderness Preservation System. However, the wilderness characteristics of the WSA will be maintained until Congress makes the final decision on the recommendation.

The entire WSA has been managed in a manner consistent with wilderness value since its designation as a WSA. The proximity of the WSA to a local highway and a growing summer resort area would provide access to additional wilderness in an area where existing wildernesses are infrequent. The proximity of the WSA to the existing Cuchara ski area with its expansion will not affect the wilderness character of the area. Although, as noted above, it may affect the quality of a user's wilderness visit from the user's viewpoint. Section 110 of the Colorado Wilderness Act states that "the fact that nonwilderness activities or uses can be seen or heard from areas within the wilderness shall not, of itself, preclude such activities or uses up to the boundary of the wilderness area".

Under the Resource Development Alternative, timber harvest, mineral development and associated road system development could reduce opportunities for primitive recreation, solitude, and affect the natural integrity, apparent naturalness and scenic values which presently characterize the area.

Under the No Action Alternative, mineral resources could be developed. This development, with associated roads, could reduce opportunities for solitude and affect the natural integrity and scenic values. If a mineral resource is developed, any roads needed would be authorized under a special use permit and general public use would be prohibited.

Theoretically, there would be a loss of solitude in the No Action Alternative since the visitor day use level would be higher than allowed in the Suitable Alternative.

The Resource Development and No Action Alternatives provide opportunities to protect scenic value by allowing vegetation treatment to reduce risks of insect and disease epidemics.

GEOLOGY AND SOILS

The overall landforms and soils will not be affected directly by either alternative.

The Spanish Peaks National Natural Landmark is a significant feature of the WSA. The effect of non-wilderness resource management activities upon the National Natural Landmark designation was considered and mitigation measures in the Forest Plan Prescriptions would provide for the protection of the landmark. Wilderness designation would preclude improvements and developments to enhance, interpret or study the landmark features for future educational or scientific purposes within the boundaries of the WSA.

Increased potential for mineral activity and limited vegetation manipulation activities under the unsuitable alternative could impact the soils within the project area. Temporarily increased erosion and sediment yields would result on active project areas. Mitigation measures in the Forest Plan Prescriptions however, would be specified to maintain the impacts within acceptable limits.

MINERALS

The effects of the alternatives on mineral resources is significant. Under either the suitable or unsuitable alternative, until Congress determines otherwise mineral exploration and development activities under the general mining laws shall be administered according to the laws generally applicable to the National Forest System (Public Law 96-560, Section 105(c)). Only leasing with no surface occupancy stipulations is recommended until such time as Congress acts on the disposition of this area, designates it as wilderness or releases it to multiple use management. If it is released for multiple-use management, leasing recommendations that apply on non-classified NFS lands will apply.

Under the suitable alternative with designation as wilderness, subject to valid existing rights, effective January 1, 1984, the minerals in wilderness were withdrawn from appropriation under the mining laws and from disposition under the mineral leasing laws. Therefore, a suitable alternative would remove the area from all forms of mineral activities under the general mining and leasing laws. The suitable alternative would restrict accessibility as well.

Under the unsuitable alternative, the mining laws and laws pertaining to mineral leasing will apply, unless otherwise determined by Congress. Exploration and development of mineral resources would tend to support local county needs and improve employment and economic well being. Surface management would be as prescribed in the Forest Plan.

Table IV-A illustrates the area subject to mineral leasing recommendations under suitable and unsuitable alternatives.

TABLE IV-A
MINERAL LEASING AREA

<u>Category</u>	<u>Alternative</u>	
	<u>Suitable</u>	<u>Unsuitable</u>
Geophysical Investigation	9,866 Acres	17,650 Acres
Leasable	-0- Acres	19,600 Acres
No leasing (Will be withdrawn)	19,600 Acres	-0- Acres

Unpatented mining claims have potential mineral values which would be affected by a wilderness designation. Under the suitable alternative, access and operations would be restricted. The additional costs of mitigation would add additional expense to mining operations.

A wilderness designation for the area will withdraw 19,600 acres from mineral leasing and mineral entry subject to valid existing rights.

VEGETATION

The vegetation within the WSA will continue to be influenced mainly by natural ecological forces under the suitable alternative. Use of forage by livestock will continue and recreation use may create changes. Restoration can return disturbed areas to production, but only over a long period of time due to the slow recovery of fragile ecosystems. Under wilderness management aspen and other temporary species would tend to be replaced by climax species.

Under the resource development alternative, the vegetation could be managed on as much as about 65 percent of the area to produce wood fiber, increase water yield, and improve and maintain wildlife habitat.

TIMBER

Implementation of the suitable alternative would result in the timber resource being unavailable for harvest or vegetation management. Those tree stands otherwise brought under management would tend to overmature with increased prevalence of insects and disease.

Under the resource development alternative, the more accessible and capable forest portion of the WSA would at some future time be harvested. This would amount to a long term sustained yield of up to 0.6 MMBF per year on slopes of 45 percent or less. This would permit utilization of some of the trees otherwise lost through natural causes.

The resource development alternative would also make available wood fiber which would tend to benefit production, although currently local demand is not high for expanded sources of timber to meet those needs.

PROTECTION

Air Quality. There is no evidence to indicate that either alternative would have significant effects on air quality or the area's class II designation and protection requirements for the class II designation.

Fire. Selection of the suitable alternative would have little effect on the wildfire occurrence in the WSA. Natural accumulation of ground fuels would have only a slight affect over the long run.

The unsuitable alternative would provide the opportunity to employ prescribed fire to improve wildlife habitat in applicable situations, however.

Forest Pest Management

Under the suitable alternative, opportunities for using an integrated approach to pest management are limited to control of insect and disease outbreaks in those situations where nonwilderness values on adjacent lands are threatened.

The unsuitable Resource Development Alternative would provide for vegetation management to produce healthy stands, less susceptible to insect and disease infestations and buildup. Areas with past occurrences of insect damage have been identified (Figure III-5) and indicate potential treatment opportunities.

WATER

Water Quantity. Wilderness designation under the suitable alternative would preclude future water yield improvement activities in the Spanish Peaks WSA.

Under the unsuitable Resource Development Alternative, water resources would continue to be managed under the direction of the Forest Land and Resource Management Plan. Water yield improvement activities, through vegetation management, could increase water yield by 760 acre-feet per year from the present yield of 8,820 acre-feet per year, to 9,600 acre-feet per year.

Water Uses and Rights. A suitable or unsuitable recommendation will not affect any existing or proposed water uses. Most of the demand for Spanish Peaks water will continue to be downstream in the Apishapa and Cucharas Rivers.

There are no identified water development needs for livestock grazing, and there are no proposed water storage or diversion projects in the WSA.

WILDLIFE AND FISH

The Spanish Peaks WSA is important summer range for deer, and elk. The WSA is also important for winter range for deer.

Designation as wilderness will preclude some human activities such as timber harvest. Prescribed burning from a planned ignition, or timber harvest would not be allowed if the area were designated as wilderness.

The Comprehensive Wildlife Plan recognizes opportunities for habitat improvement to increase populations of wildlife to meet needs identified by the State Division of Wildlife for their Southeast Region.

Under the Resource Development Alternative, vegetation treatment by prescribed burning or timber harvest to maintain or improve wildlife habitat would be possible on up to 2,500 acres of deer winter range, and 1,000 acres of bighorn sheep winter range. A permanent herd of Bighorn Sheep is not currently in the area but is planned. Habitat diversity could be maintained or improved on up to 12,700 acres.

VISUAL RESOURCES

The suitable alternative would place all of the area under a visual quality objective of preservation, or retention.

Under the unsuitable alternative, various management practices could impact or improve existing visual resources. Mitigation measures as prescribed in the Forest Plan would protect visual qualities to meet acceptable conditions.

RECREATION

Under either alternative, an estimated capacity for up to 505 persons at one time (PAOT) could be provided in a semiprimitive ROS setting.

Under the suitable alternative, existing impacts as well as off site influences tend to limit the opportunity for a wilderness experience to a semiprimitive ROS setting. Current use is at 33 percent of the wilderness capacity of 30,350 RVD's.

Under the unsuitable alternative, the WSA would be managed for semi-primitive nonmotorized recreation in accordance with Forest Plan. The area will accommodate approximately 36,450 recreation visitor days (RVD) annually and still meet the desired recreation experience and protect resource values. The current recreation use is about 10,100 RVD's or 28 percent of the nonwilderness capacity. The unsuitable alternative would allow for potential future improvements such as heavy use trails not compatible with wilderness in order to provide for anticipated increased visitor demand to hike to the summits of the peaks or to visit features of the National Natural Landmark.

Management to protect the features for which the National Natural Landmark was recognized will not be affected by either alternative.

CULTURAL RESOURCES

There are no identified cultural resource sites in the WSA, except for the peaks themselves, which were recognized as a focal point or reference point for early settlers and travelers because of their visibility for many miles from the plains. Neither alternative would affect this status.

Under the unsuitable alternative, intensive surveys would be made to identify and evaluate currently unknown cultural resources before any disturbing activities would take place. Appropriate mitigation would protect any such sites.

NON-FEDERAL OWNED LANDS

Selection of the suitable alternative would result in about 870 acres of private lands within wilderness. About 517 acres of these private lands are within and adjacent to the WSA boundary and could be excluded with a boundary modification. This would reduce the private inholdings to 353 acres in two tracts, plus scattered patented mining claims. These private inholdings will still have a high potential for adverse effects if they are not acquired.

Boundary adjustments to further eliminate the inholdings would reduce the distance of the boundary to the center to 1 mile or less over much of the area.

Under the suitable alternative patents granted for claims in wilderness will be minerals only, unless discovery can be proved to have been made before the date of the Wilderness Act for lands which were designated as wilderness then, or before the dates of later wilderness designations when such lands are involved. Operations on patented claims within National Forest wilderness, where only the mineral rights are patented, are thus subject to direct environmental protection controls by the Forest Service and also by State agencies under applicable State laws and regulations.

TRANSPORTATION

The existing trails transportation system would remain essentially the same under the suitable alternative, except for modifications necessary for management of the wilderness and associated wilderness resources. Roads would not be developed except as necessary for access to existing rights.

Under the unsuitable alternative, 65 percent of the WSA could be accessed by vehicles for administrative purposes. These accesses would be closed to public recreation use as provided in the Forest Plan when not needed for resource management activities to retain the nonmotorized recreation opportunity.

RANGE

Public Law 96-560, Section 108, specifically references grazing regulations applicable to National Forest System Wildernesses. Grazing is permitted in wilderness and where established will continue to be allowed.

Livestock use or management activities will not change significantly with either alternative. Some effects will occur due to limitations on new use under the suitable alternative. Intensive management practices to increase capacity would not be undertaken. There are no non-structural range improvements planned. Existing and potential forage production would be about 289 animal unit months under either alternative.

SOCIAL EFFECTS

Neither alternative is expected to have significant effect on the population or lifestyles in the HRU, unless significant mineral resources were discovered and developed. Lifestyles, attitudes, beliefs, or social values would not be directly affected by either alternative.

County goals for protection of the scenic quality and natural environment are provided for in either alternative.

ECONOMIC EFFECTS

Economic benefits could be realized within the HRU in event of a significant mineral discovery and development under the unsuitable alternative. Mineral development and access necessary is restricted under the suitable alternative subject to valid existing rights.

Benefits to local communities from increased water yield, additional available wood products, or wildlife increases possible under the unsuitable alternative are only locally significant.

An economic efficiency analysis was prepared to display the differences in values discounted at 4% and 7 1/8% for resources as shown in the following Table.

TABLE IV-B

ECONOMIC EFFICIENCY ANALYSIS OF SPANISH PEAKS WILDERNESS STUDY AREA
 (ALL VALUES ARE IN MILLIONS OF REAL 1978 DOLLARS,
 DISCOUNTED AT 4 PERCENT AND 7 1/8 PERCENT)

SPANISH PEAKS

	<u>Suitable</u>	<u>Unsuitable</u>	<u>Current Management</u>
<u>Resource Outputs</u>			
1. Timber (MMBF)	0	0.6	0
2. Water Yield (MAF)	8.8	9.6	8.8
3. Rec-Wild. (MRVD)	30.4	0	0
4. Rec-Unsuit Disp. (MRVD)	0	36.4	36.4
5. Rec-Dev. (MRVD)	0	0	0
6. Range (MAUM)	.3	.3	0.3
<u>Discounted Benefits 4% (MM\$)</u>			
1. Timber	0	0.2	0
2. Water Incr.	0	0.3	0
3. Rec-Wild.	5.3	0	0
4. Rec-Nonwild.	0	4.0	4.0
5. Range	<u>0.1</u>	<u>0.1</u>	<u>0.1</u>
6. TOTAL	5.4	4.6	4.1
<u>Discounted Costs 4% (MM\$)</u>			
1. Operation & maint.	0.3	.8	0.6
2. Gen. Admin.	0.1	0.2	0.1
3. Capital Invest.	<u>0</u>	<u>0</u>	<u>0</u>
4. TOTAL (PVC)	0.4	1.0	0.7
<u>Economic Measure</u>			
1. Total Discounted Benefits (PVB)	5.4	4.6	4.1
2. Total Discounted Costs (PVC)	0.4	1.0	0.7
3. Present Net Value Incremental	5.0	3.6	3.4
4. Benefit/Cost Ratio	13.5	4.6	5.9

TABLE IV-B (Continued)

ECONOMIC EFFICIENCY ANALYSIS OF SPANISH PEAKS WILDERNESS STUDY AREA
(ALL VALUES ARE IN MILLIONS OF REAL 1978 DOLLARS,
DISCOUNTED AT 4 PERCENT AND 7 1/8 PERCENT)

	<u>Suitable</u>	<u>Unsuitable</u>	<u>Current Management</u>
<u>Discounted Benefits</u>			
<u>7 1/8% (MM\$)</u>			
1. Timber	0	0.2	0
2. Water Incr.	0	0.2	0
3. Rec-Wild.	3.4	0	0
4. Rec-Nonwild.	0	2.5	2.5
5. Range	<u>0.0</u>	<u>0.0</u>	<u>0</u>
6. TOTAL	3.4	2.9	2.5
<u>Discounted Cost</u>			
<u>7 1/8% (MM\$)</u>			
1. Operation & Maint.	0.2	.5	0.4
2. Gen. Admin.	0.0	0.1	0.1
3. Capital Invest.	<u>0</u>	<u>0</u>	<u>0</u>
4. TOTAL (PVC)	0.2	0.6	0.5
<u>Economic Measure</u>			
1. Total Discounted Benefits (PVB)	3.4	2.9	2.5
2. Total Discounted Costs (PVC)	0.2	0.6	0.5
3. Present Net Value Incremental	3.2	2.3	2.0
4. Benefit/Cost Ratio	17.0	4.8	5.0

As displayed in Table IV-B, resource values were assigned to timber, water, range, and recreation outputs. Wildlife benefits are included in the recreation visitor day 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.

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. Values are lower using the 7 1/8 percent discount rate because more emphasis is placed on immediate use of resources rather than future uses.

Resource values in the analysis are:

<u>Resource</u>	<u>Units</u>	<u>Value/Unit(\$)</u>
Timber	MCF	62.55
Water	Acre-Foot	19.70
Recreation (Wilderness)	RVD	8.00
Recreation (Nonwilderness)	RVD	5.00
Range	AUM	10.50

WILDERNESS CAPABILITY

Wilderness capability is analyzed without regard to either the need for more wilderness or the availability of the area for wilderness designation. It is determined by both the degree to which an area possesses the basic characteristics necessary for wilderness designation as well as the degree to which an area can be 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) characteristics or attributes; and (b) manageability. To indicate the degree to which an area possess wilderness attributes, the Wilderness Attribute Rating System was developed during RARE-II. Chapter III shows the rating elements for the Spanish Peaks WSA as discussed below.

Both the physical characteristics and manageability of the area were evaluated. The Wilderness Attribute Rating System (WARS) which was developed in RARE II to indicate relative wilderness quality was reviewed for this report and used to consider the capability for wilderness. Spanish Peaks was rated 20 for RARE II. Based upon additional knowledge of the area and a review of the WARS rating in

relation to the established WSA boundaries, it was determined that the rating should be 16 as described in Chapter III. The average for all RARE II areas in Colorado was 19 while those recommended for wilderness was 22. The Spanish Peaks WSA falls below those averages.

The overall relative quality of the area, as compared to WARS ratings for other areas considered in RARE II, is significantly below the average WARS rating of 22 for those areas recommended for wilderness in RARE II.

Manageability (b) was evaluated using the following criteria:

- Forest Service ability to manage the area as an enduring resource of wilderness and to protect and manage its natural character.

Recreation, grazing, and other wilderness resource uses can be managed to maintain the wilderness character on most of the WSA. However, potential surface disturbances relating to mineral and energy development could be expected to have significant impacts if important discoveries are made. Roads necessary to access mineral development and existing mineral rights and patents would have a significant impact.

The WSA contains patented land tracts, patented and unpatented mining claims, access roads, and external impacts which tend to severely affect the ability of the Forest Service to manage the area as an enduring wilderness resource. Much of the boundary was adjusted during RARE II to eliminate as much of the private land as feasible. Other private land and impacts were not separable. Boundaries are difficult to locate and identify on the ground because of lack of terrain features and natural barriers. Although the WSA has moderate wilderness attributes, it is questionable if these attributes can be maintained on the entire area because of outstanding privately owned rights.

Size and shape of the area.

The Spanish Peaks WSA contains 19,570 acres and is relatively narrow. The boundary of the area is determined by roads, land ownership, and past non-conforming uses in most places rather than by topographic features. The absence of natural features and barriers would make posting and enforcement of the boundary very difficult in relation to the area protected.

Much of the WSA is 3 miles or less in width compared to about 12 miles in length.

- Location relative to external influences.

The WSA boundary adjoins private lands for about 10 miles. This makes the perimeter of the area susceptible to external impacts. Access through the private lands for management purposes is not assured which increases the difficulty of protection. Activities in the form of sights and sounds of noncompatible uses adjacent to the

assured which increases the difficulty of protection. Activities in the form of sights and sounds of noncompatible uses adjacent to the boundary further impact the WSA because of its narrow nature, and limits the ability to manage the area for wilderness qualities.

Public access for visitors to the area is adequate along the south of the WSA, however additional right-of-ways are desirable on the north and east.

WILDERNESS AVAILABILITY

National Forest System Land 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, (c) effects that wilderness designation would have on adjacent lands, and (d) the need to intensively manage the area for production of goods and services other than wilderness.

Existing Constraints and Encumbrances.

Existing mineral claims have potential to affect management under wilderness designation.

Designation of the area by Congress as wilderness would withdraw the area from mineral entry and leasing but would permit the exercise of existing rights, subject to stipulations which would not prohibit but would have an effect on utilization of the resources. The exercise of existing rights could result in activities such as road building or mine development not compatible with maintenance of the wilderness environment. A nonwilderness conclusion, if confirmed by Congress, will result in the mineral resources being managed the same as on other National Forest lands.

The patented mining claims have potential mineral values which would be affected by wilderness designation, particularly in terms of access to the patents.

Activities on the unpatented claims are governed by the 36 CFR 228, Subpart A regulations, but surface impacts and access could reduce wilderness values.

Outstanding mineral rights over which the U.S. would have little control, depending on the terms of the conveyance, are an encumbrance on 400 acres of the WSA.

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.

Incompatible uses include the Bulls Eye Mine and four-wheel drive access road on the northern slope between the east and west Spanish Peaks. A gold and silver mine was operated on the southern slope of the WSA before 1938. A wagon road, currently impassable served the mine. Although now inactive, it has the potential for future impacts upon the wilderness environment. The existing and potential use of some of the private lands would be incompatible if those lands were included in wilderness. (See Figure IV-1).

- Effect of Wilderness Designation and Management on Adjacent Lands.

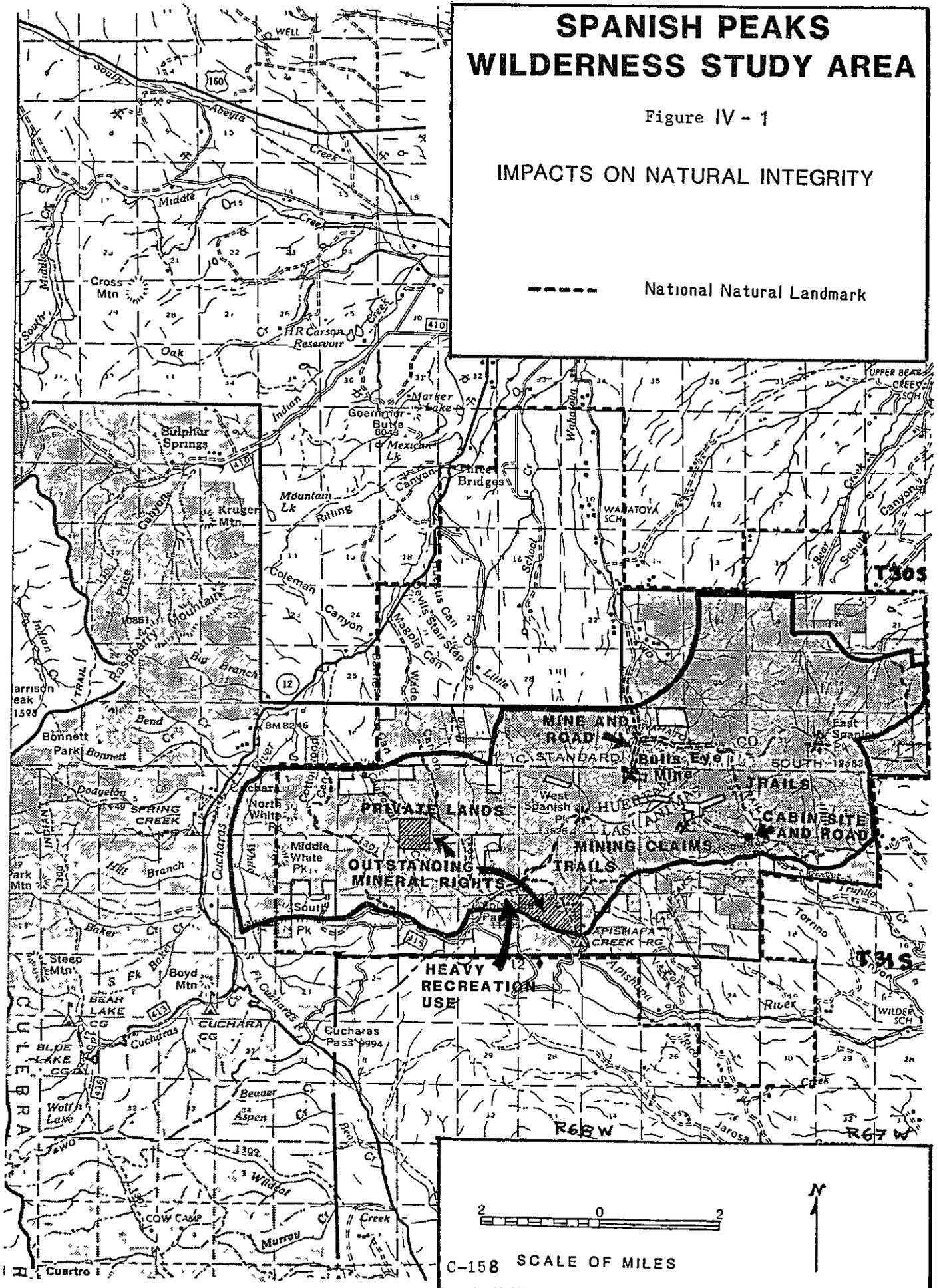
Management practices on wilderness are adjusted to allow for protection of adjacent lands where insect disease outbreaks or wildfire is likely to spread to adjacent lands. Management activities under the unsuitable alternative, however, are more apt to provide opportunity for reducing the potential rather than control after the fact.

SPANISH PEAKS WILDERNESS STUDY AREA

Figure IV - 1

IMPACTS ON NATURAL INTEGRITY

----- National Natural Landmark



C-158 SCALE OF MILES

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 benefits of the wilderness resource, both tangible and intangible, should be greater than the benefits foregone.

Wilderness benefits in the Spanish Peaks WSA include the potential to provide the opportunity for wilderness recreation experiences to 505 people at one time (PAOT) with an annual capacity of 30,350 recreation visitor days. Also, a degree of protection to natural ecosystems, wildlife, water quality, and other resources would occur with wilderness designation.

Benefits foregone under wilderness designation include potential mineral values and loss of revenues from potential leases. The study area contains few small mineralized zones with low to moderate resource potential for locatable minerals. Coal may underlie the area but at a depth of several thousand feet, and the oil and gas potential appears low. (USGS, MF-1542-C)

The suitable alternative would withdraw the entire area from mineral activities under the general mining and leasing laws subject to valid existing rights. The unsuitable alternative would allow mineral exploration and development subject to 36 CFR 228 with appropriate stipulations.

The maximum capacity for dispersed recreation use will be slightly less under the suitable alternative than it would be with the unsuitable alternative. Approximately 16 percent more recreation visitor day use capacity is possible under an unsuitable alternative.

The suitable alternative would preclude projects designed to increase water yield up to 760 acre-feet per year. The additional water yield is important for domestic and agricultural use.

Selection of the suitable alternative would allow natural ecological succession to occur. Vegetation management to reduce the potential for insect and disease loss would be foregone.

The unsuitable alternative would allow management on about 3,900 acres of capable (productive) forest land, with slopes less than 45 percent. The long-term annual sustained yield would be 0.9 MMBF from those lands. Wildlife diversity and deer and elk winter range would benefit from this management.

Wildlife habitat in the Spanish Peaks WSA needs improvement and maintenance of winter range and habitat diversity to meet the projected wildlife demands on the Pike and San Isabel National Forests and the Colorado Division of Wildlife Southeast Region. The need for winter range maintenance and improvement on National Forest System lands is increasing due to the encroachment by land development on the winter range located on adjoining private lands to the south and north of the WSA.

WILDERNESS NEED

There must be clear evidence of current or future public need for additional designated wilderness in the general area involved.

Important parts of this criteria include (a) the location, size, and type of other wildernesses 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 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.

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.

Wilderness acreage is about 53,450 acres within 50 miles, 1,019,617 acres within 100 miles, and 1,408,100 within 150 miles. However, wilderness is not readily available to the population of southeastern Colorado. The Collegiate Peaks and Great Sand Dunes Wildernesses are both about 2½ or more hours driving time from Pueblo. The northern boundary of this WSA is about 1½ hours driving time from Pueblo. The suitable alternative would help provide for this need, although the need could also be met by wilderness designation of the Sangre de Cristo and Greenhorn Mountain WSA's.

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

Visitor information was gathered in 1981 for the first time for the four wildernesses on the Pike and San Isabel National Forests established on December 22, 1980, by Public Law 96-560. Historical use information is available for the wildernesses that existed prior to the Colorado Wilderness Act. This 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/YR
Collegiate Peaks *	153.2	159,900	0.96
Lost Creek *	56.7	106,000	0.53
Mount Massive *	30.5	26,000	1.17
La Garita	32.3	108,486	0.30
South San Juan	79.5	133,463	0.60
Weminuche	255.4	463,224	0.55
Chama River Canyon	5.6	50,260	0.11
Crucis Basin	1.6	18,000	0.08
Latir Peak	1.5	20,000	0.09
Pecos	198.3	223,333	0.88
San Pedro Park	50.2	41,132	1.22
Dome	0.2	5,200	0.04
Wheeler Peak	9.2	19,661	0.48

- This use information indicates that the existing wilderness is generally receiving moderate use and that additional capacity may be available, particularly with management to maintain desired physical, social, and managerial settings. Overall recreation use for all activities is steadily increasing in the vicinity. However, population trends in the HRU are relatively stable. The number of recreation residences however, in the Cuchara area is increasing significantly in both summer and winter vacation homes.
- Lands' ability to provide opportunities for unconfined outdoor recreation experiences.

The State Comprehensive Outdoor Recreation Plan for this region indicates needs for picnicking, swimming, bicycling, four-wheel driving, developed camping, back country camping, and fishing. Of these only back country camping is supported by wilderness designation of the WSA. Back country camping, opportunities however, are available under management for nonwilderness semiprimitive non-motorized recreation as well.

- While the Spanish Peaks WSA has a capacity to provide for unconfined outdoor recreation opportunities, it is recognized that this opportunity is also available in the surrounding area. Approximately 248,730 acres of semiprimitive nonmotorized and 537,100 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.

There are no known threatened or endangered plant or animal species 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.

- Provide for preservation of unique landforms types and ecosystems.

There are no unique ecosystems as identified in RARE II in the Spanish Peaks WSA that are not currently represented in other wildernesses. The unique landform represented by the Natural Landmark will be preserved under either alternative. However, management practices to interpret, enhance, and make more accessible the unique geologic features for scientific, educational, and scenic purposes could be accomplished more effectively with non-wilderness designation than as wilderness. Other landforms are well represented in the vicinity. (See Table IV-D)

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

Under a wilderness recommendation, the long term productivity of forested areas for commodity production would remain static or in many cases decline. The short term use for nonwilderness purposes would maintain and enhance the long term productivity for water yield, timber, wildlife habitat diversity, and insect and disease control through the maintenance of a healthy forest cover. However, under a nonwilderness recommendation, some of the land within the WSA would remain in the present condition and would be managed for dispersed recreation purposes.

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

A recommendation for designation of this WSA as wilderness is not viewed as an irreversible commitment of resources, since Congress has the authority to designate wilderness and also has the authority to de-classify wilderness, should this be needed.

The removal of mineral resources is viewed as an irreversible and irretrievable commitment because these are non-renewable resources. At the present time, the wilderness study designation (Public Law 96-560) provides that mineral exploration and development activities within this WSA will be administered by the same laws generally applicable to the National Forest System. Under a suitable alternative, if adopted, the WSA would be withdrawn from mineral entry and leasing, subject to valid existing rights.

Loss of potential revenues from mineral leasing under the suitable alternative is an irretrievable loss, though not irreversible. In addition, there will be an irretrievable loss of timber production and revenues because of the lost opportunity to harvest this resource.

Under the unsuitable alternative, the existing situation would continue unless Congress determined otherwise. Impacts from development of resources could be significant and could be considered irretrievable from a wilderness suitability standpoint.

ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED

SUITABLE ALTERNATIVE

The area would be withdrawn from mineral entry and leasing with potential loss returns to the local communities.

There will be a decrease in maximum recreation capacity (RVD's) because of the increased solitude desired for wilderness recreation.

Adverse environmental effects include resource benefits foregone in water yield increases, improved wildlife habitat and winter range, and timber and wood product yields.

Social and economic benefits available to local communities realized through utilization of resources such as timber or fuelwood would be lost.

UNSUITABLE ALTERNATIVE

There may be an eventual irreversible loss of wilderness character through vegetation management and mining activities in the area.

The Unsuitable Alternative would preserve the wilderness characteristics, however until Congress acts.

CONFLICTS WITH OTHER GOVERNMENT AGENCY PLANS

There are no known direct conflicts with plans of other government agencies under any of these alternatives. Responses of other agencies to the draft are found in Chapter VI of the FEIS for the Forest Land and Resource Management Plan.

TABLE IV-D
 REPRESENTATIVE ECOSYSTEMS AND LANDFORMS IN THE SPANISH PEAKS
 AND NEARBY WILDERNESSES OR WILDERNESS STUDY AREAS

<u>ECOSYSTEMS</u>	<u>Spanish Peaks WSA</u>	<u>Green-horn WSA</u>	<u>Sangre de Cristo WSA</u>	<u>Collegiate Peaks Wilderness</u>	<u>Lost Creek Wilderness</u>
Alpine	Mod	Low	High	High	Mod
Spruce/fir	Mod	Mod	High	High	High
Douglas-Fir	High	Mod	High	Mod	High
Ponderosa Pine	Mod	Low	Mod	Low	High
Aspen	Mod	Mod	High	High	High
Shrub Oak	Low	Low	Mod	None	Low
Pinon/Juniper	Mod	Low	Low	None	None
Mountain Grasses Meadows	Low	Low	Mod	High	High
<u>LANDFORMS</u>					
Peaks over 13,000 ft. ele.	Low	None	High	High	Low
Rock Out-Crops and Talus Slopes	High	High	High	High	High
Special geologic Attraction	High	None	Low	Low	High
Steep Slopes Sharp Canyons	High	High	High	High	High

Key: Relative Abundance
 High - Abundant
 Moderate (Mod) - Common
 Low - Infrequent

**WILDERNESS STUDY AREA REPORT
SANGRE DE CRISTO**

**San Isabel and Rio Grande National Forests
and Contiguous**

**Black Canyon, South Piney Creek, Papa Keal
and Zapata Creek Wilderness Study Areas
Bureau of Land Management**

Alamosa, Custer, Fremont, Huerfano and Saguache Counties, Colorado

CHAPTER I
INTRODUCTION AND INDEX TO
FOREST PLAN FEIS

The information presented in this Sangre de Cristo Wilderness Study Area section of Appendix C was used to provide the data that appears in the main body of the Final Environmental Impact Statement (FEIS) for the Pike and San Isabel National Forests Land and Resource Management Plan (Forest Plan). For your convenience, the following index indicates where in the Forest Plan FEIS certain information about the WSA is displayed.

<u>Forest Plan FEIS Chapter Title</u>	<u>Chapter-Page</u>
Purpose and Need	I-2
Alternatives Including the Proposed Action	II-28
Affected Environment	III-73
Environmental Consequences (wilderness suitability or unsuitability)	IV-40
Consultation With Others	VI-I