

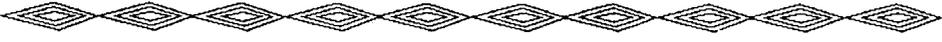
APPENDICES

APPENDICES

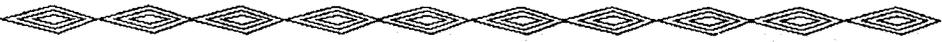
Appendix A: Planning Issues, Criteria and Management Concerns	A-1
Appendix B: Mineral Resources	
B-1 BLM Mineral Resources Policy	B-1
B-2 Mineral Leasing Proposals	B-2
Appendix C: Lands	
C-1 Lands and Minerals Disposal Policy	C-1
C-2 Set Asides	C-5
C-3 Memorandums of Understanding and Cooperative Agreements	C-7
C-4 Land Tenure Adjustment Decisions - Southern Rio Grande Plan Amendment (1986)	C-8
Appendix D: Livestock Grazing	
D-1 Mimbres Resource Area Allotment Categories	D-1
D-2 Allotment Status and Category	D-2
D-3 Grazing Management Considerations for the Mimbres Resource Area	D-10
Appendix E: Desired Plant Community	E-1
Appendix F: Cultural Resources	F-1
Appendix G: Recreation	
G-1 Recreation Opportunity Spectrum	G-1
G-2 Implementation of ORV Designations	G-4
Appendix H: Visual Resource Management	H-1
Appendix I: Wilderness	
I-1 Wilderness Inventory Report, Pena Blanca	I-1
I-2 Wilderness Inventory Report, Organ Needles	I-5
I-3 Wilderness Inventory Report, Gray Peak	I-9
I-4 Wilderness Inventory Report, Apache Box	I-13
Appendix J: Gila River Wild and Scenic River Inventory Report Summary	J-1
Appendix K: Major Soil Types in the Mimbres Resource Area	K-1
Appendix L: Special Status Species	
L-1 Threatened, Endangered, and Sensitive Plant Species Potentially Occurring on Public Land in the Mimbres Resource Area	L-1
L-2 Special Status Animals	L-9

APPENDIX A

PLANNING ISSUES, CRITERIA AND MANAGEMENT CONCERNS



ISSUE 1: LAND OWNERSHIP ADJUSTMENTS



Needed Decisions

To resolve this issue, answers are needed to the following questions:

- Which lands should BLM acquire (by exchange, purchase, or donation) to consolidate its land pattern and to enhance multiple-use programs?
- Which lands should BLM retain in public ownership?
- Which lands should BLM dispose of and why?

Planning Criteria

To develop answers for the needed questions identified above, BLM will consider:

- Multiple-use values (whether or not significant or unique values exist)
- Land and resource management efficiency
- Service to the public (i.e., meeting community needs, etc.)
- Public interest and attitudes
- Existing land uses
- Surrounding land ownership pattern
- Adjacent land uses
- Need for public and administrative access
- FLPMA, Section 203 sale criteria
 - parcels difficult and uneconomic to manage
 - purpose of a previous acquisition is no longer required
 - disposal of a parcel will serve important public purposes
- Social and economic effects
- Effects on other resources and uses
- The degree to which changes in ownership will promote consolidation of public land without creating a scattered land pattern or split-estate
- Public health and safety



ISSUE 2: AREAS OF CRITICAL ENVIRONMENTAL CONCERN (ACECs) AND OTHER SPECIAL MANAGEMENT AREAS (SMAs)



Needed Decisions

To resolve this issue, answers are needed to the following questions:

- Which public land should be designated as biological, cultural, scenic or natural hazard ACECs and how should they be managed (the RMP must clearly identify management objectives for each area and what restrictions if any apply to other uses)?
- Is the Gila River (BLM-administered public land in the Gila Lower Box between Redrock and Virden, New Mexico and the Gila Middle Box upstream from Redrock, New Mexico) suitable for inclusion in the National Wild and Scenic River System? How should these areas be managed?
- Which routes should be considered as possible locations for the Continental Divide National Scenic Trail? Which route should be ultimately designated?
- Is land in the Peloncillo Mountains (between the Coronado National Forest and Antelope Pass) suitable for inclusion in the National Wilderness Preservation System?
- Is land in the Organ Mountains (between Soledad Canyon and Peña Blanca and between the Organ Mountains Wilderness Study Area (WSA) and Squaw Peak) suitable for inclusion in the National Wilderness Preservation System?
- Is land in the Apache Box area suitable for inclusion in the National Wilderness Preservation System?
- Which public land should be identified for other forms of special management (such as scenic or backcountry byways, watchable wildlife areas, and "Adventures in the Past") and how should it be managed?

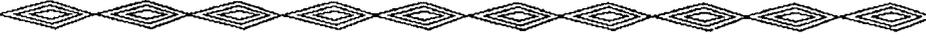
Planning Criteria

To develop answers for the needed decisions identified above, BLM will consider:

- Resource values
- Manageability of an area to preserve its resource value
- Existing ACEC, wilderness, and wild and scenic river representation
- Current and potential land uses
- Effects of designation on other resources and uses
- Effects of nondesignation on resource values
- Social and economic effects
- Public interest and attitudes
- Consistency of designation with resource plans of other Federal, State, and local governments and the Indian tribes
- Consultation with Federal, State and local agencies, the scientific community, and individuals
- Long-term (more than 20 years) versus short-term (less than 20 years) benefits
- Management concerns along the U.S./Mexican border
- Public health and safety



ISSUE 3: VEHICLE MANAGEMENT



Needed Decisions

To resolve this issue, answers are needed to the following questions:

- What public land should be designated as open, limited, or closed to vehicle use?
- What areas should be managed for intensive off-road vehicle (ORV) use?
- Within restricted areas, how should vehicle use for authorized activities (other than recreational) be accommodated?

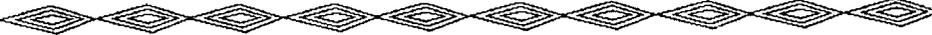
Planning Criteria

To develop answers for the needed decisions identified above, BLM will consider:

- Level of existing use and location of areas currently being used by ORVs
- Demand for additional ORV opportunities
- Types of ORVs being used
- Effects of ORVs use on other resources and uses
- Effects of ORV restrictions or closures on other resources
- Effects of ORV designations on other uses such as livestock management, law enforcement, and mineral exploration and development
- BLM administrative needs
- Public interest and attitudes
- Manageability of an area to accomplish the objectives of a designation
- Management concerns along the U.S./Mexican border
- Public health and safety
- Social and economic effects



ISSUE 4: ACCESS



Needed Decisions

To resolve this issue, answers are needed to the following questions:

- Where should BLM provide access to or across public land and what type of access is needed?
- What actions should BLM take to provide access to or across public land?
- How should BLM coordinate with other land and resource management agencies to ensure access to State trust, National Forest, and public lands?

Planning Criteria

To develop answers for the needed decisions identified above, BLM will consider:

- Extent of public land and the size of public land parcels
- Resource values
- Availability and type of existing access
- Public needs and preferences for access
- Agency administrative needs for access
- Coordination with State and local governments and other Federal agencies
- Effects of the availability of access on existing resources and uses
- Compatibility with adjoining land uses
- How the public land is being used and managed
- Management concerns along the U.S./Mexico border
- Public health and safety
- Social and economic effects
- Effects on adjacent private landowners
- Potential for development of access through consolidation of public land or development of alternative routes, followed by negotiated easement acquisition, and as a last resort, condemnation



MANAGEMENT CONCERN 1: RIGHTS-OF-WAY



Needed Decisions

To resolve this management concern, answers are needed to the following questions:

- Which public land should be designated for rights-of-way corridors, avoidance areas, and exclusion areas?
- What terms and conditions should be applied to rights-of-way grants for corridors and sites and for use outside corridors and sites?
- Which existing public land transportation and utility corridors should not be designated as a rights-of-way corridor upon plan approval?

Planning Criteria

To develop answers for the needed questions identified above, BLM will consider:

- Service to the public
- Resource values and uses
- Adjacent land uses
- Compatibility with other utility rights-of-way
- Presence of existing corridors and rights-of-way (and confining new rights-of-ways to existing corridors and sites to the extent possible)
- Social and economic effects
- Effects on the resources and uses



MANAGEMENT CONCERN 2: MINERALS



Needed Decisions

To resolve this management concern, answers are needed to the following questions:

- Which public land should be open to the operation of the mining laws? Which should be closed?
- What terms or conditions should be applied to public land open to the operation of the mining laws?
- Which public land should be open to mineral material (sand and gravel, for instance) disposal? Which should be closed?
- What terms, conditions, or special stipulations should be applied to public land open to mineral material disposal activities?
- Which public land should be considered for competitive mineral material sales?
- Which public land should be open to energy and nonenergy leasable mineral development subject to the terms and conditions of the standard lease form, minor constraints such as seasonal restrictions, or major constraints such as no surface occupancy?
- Which public land should be closed to energy and nonenergy mineral leasing?

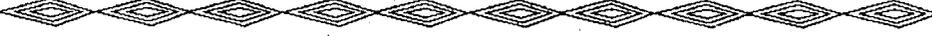
Planning Criteria

To develop answers for the needed decisions identified above, BLM will consider:

- Effects of mineral exploration and development on other resources and uses
- Mineral potential and the probability of a discovery
- Demand for mineral resources
- Lands available for mineral production
- Effects of environmental protection stipulations on claimants, lessees, and permittees
- Success of protective stipulations in accomplishing objectives
- Effects on the mineral industry of closing lands
- Public health and safety
- Social and economic effects



MANAGEMENT CONCERN 3: RECREATION



Needed Decisions

- Which public land should be managed with emphasis on outdoor recreation opportunities?
- What recreation setting should be maintained and what activities should BLM provide for?
- What recreation management strategies should be developed and what actions should BLM take to maintain established recreation settings?
- What activity planning priorities should BLM establish for the Resource Area?
- Which public land should be identified and managed for interpretation of natural and cultural resources and public education (such as backcountry byways, watchable wildlife areas)?

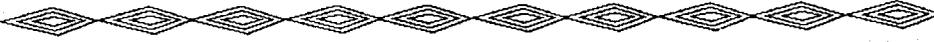
Planning Criteria

To develop answers for the needed decisions identified above, BLM will consider:

- Existing recreation uses, use areas, and facilities
- Public demand for additional recreation activities, settings, and experiences
- Compatibility with adjacent land uses and resources
- Effects of recreation uses on other resources and uses
- Public health and safety
- Planned or projected recreation developments
- Public interest and attitudes
- Potential for interpretation of resource management objectives
- Social and economic effects



MANAGEMENT CONCERN 4: CULTURAL AND PALEONTOLOGICAL RESOURCES



Needed Decisions

To resolve this management concern, answers are needed to the following questions:

- What management objectives should BLM establish for cultural and paleontological resources in the Resource Area?
- What actions should BLM take to achieve these objectives (such as preparation and implementation of cultural resource management plans and designation of ACECs or other SMAs)?

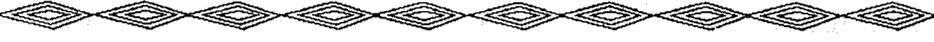
Planning Criteria

To develop answers for the needed decisions identified above, BLM will consider:

- Relative importance and sensitivity of known and anticipated cultural and paleontological resources
- Geographic distribution and density of cultural and paleontological resources
- Feasibility of attaining cultural and paleontological resource management objectives
- Need or desirability of cultural and paleontological resource management objectives
- Threats to cultural and paleontological resources
- Public interest and attitudes
- Effects of cultural and paleontological resource management on other resources and uses
- Compatibility with adjacent land uses
- Social and economic effects



MANAGEMENT CONCERN 5: WILDLIFE HABITAT



Needed Decisions

To resolve this management concern, answers are needed to the following questions:

- What wildlife species and habitats should receive management priority? What maintenance, improvement, and expansion objectives should BLM establish for these species and habitats?
- Which priority areas need Habitat Management Plans (HMPs)?
- What actions should BLM take to achieve the objectives for priority species and habitats?
- What wildlife population goals should be established, considering existing and anticipated habitat capacity?
- What monitoring objectives should BLM establish for priority habitat?
- Where, with what methods, and at what times of the year should animal damage (predator) control activities be authorized?

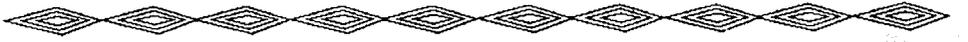
Planning Criteria

To develop answers for the needed decisions identified above, BLM will consider:

- Existing HMPs
- Input from Federal and State wildlife agencies and the scientific community
- Species and habitats of high public or scientific interest
- Extent of species and habitats including current range, key areas, and potential habitat
- Species population goals
- Forage allocation
- Species habitat requirements
- Vegetation communities and habitat condition
- Effects of other resource uses
- Social and economic effects
- Presence of exotic species and conflicts between exotic and native species
- Maintenance or enhancement of biological diversity



MANAGEMENT CONCERN 6: SOIL, AIR AND WATER



Needed Decisions

To resolve this management concern, answers are needed to the following questions:

- What objectives should BLM establish for watershed management and control of soil erosion?
- What management objectives should BLM establish for maintenance of air quality in the Resource Area?
- What actions should BLM take to achieve these objectives (such as preparation and implementation of watershed management plans)?
- What water quality objectives should BLM establish for the Resource Area and what actions should be taken to achieve those objectives?
- Where should BLM focus its efforts to secure instream flows for riparian, wildlife, and recreation purposes (if such a provision ever exists under New Mexico State law)?

Planning Criteria

To develop answers for the needed decisions identified above, BLM will consider:

- Soil type
- Effectiveness of existing erosion control structures and the need for additional structures
- Extent of saline/alkali soils
- Watershed condition in areas of saline/alkali soils
- Methods to reduce runoff and erosion
- Current and potential land uses
- Air quality standards of the Clean Air Act (as amended, 1977)
- Air quality standards of the State of New Mexico
- Current and future land uses that may affect air quality
- Values and uses of water resources
- Demand for additional use of water resources
- Water quality and trend
- Watershed condition and trend
- Watershed productivity potential
- Manageability of the water resources
- Other resource uses of water resources
- State of New Mexico and Federal water quality standards
- Social and economic effects



MANAGEMENT CONCERN 7: VEGETATION



Needed Decisions

To resolve this management concern, answers are needed to the following questions:

- On which public land should BLM establish vegetation sale areas for native plants and firewood?
- What vegetation management objectives should BLM develop for maintenance or re-establishment of desired plant communities and what actions should be taken to achieve those objectives?
- On which public land should land treatments (vegetation manipulation) be used to protect, restore, establish, or enhance vegetation species? What types of treatments should BLM use (root plow, herbicides, prescribed fire)?

Planning Criteria

To develop answers for the needed decisions identified above, BLM will consider:

- Available access and demand
- Effects on other resources
- Social and economic effects
- Areas that require increased vegetation cover to reduce soil erosion, increase livestock forage, and improve wildlife habitat
- Suitability of natural vs. artificial revegetation techniques
- Use of land treatments to maintain or improve plant communities
- Current and potential land uses
- Presence of special status plants
- Input from the scientific community
- Potential for location of vegetation sale areas in land disposal areas and mineral material sale areas
- Condition and trend of native plant communities
- Maintenance or enhancement of biological diversity
- Presence of exotic species and conflicts between exotic species and native species



MANAGEMENT CONCERN 8: RIPARIAN AND ARROYO HABITAT



Needed Decisions

To resolve this management concern, answers are needed to the following questions:

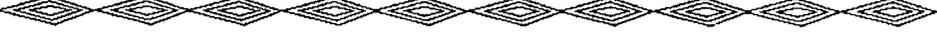
- Which riparian and arroyo habitat areas should be designated as ACECs or receive other special management designations?
- What management prescriptions are needed to protect or restore riparian and arroyo habitat areas in the Mimbres Resource Area?
- Where should BLM focus its efforts to secure instream flows for maintenance of riparian habitat (should this become a possibility)?

Planning Criteria

- Condition and trend of riparian vegetation
- Condition and trend of arroyo habitat vegetation
- Resource values
- Current and potential land uses
- Effects on other resources and uses
- Social and economic effects
- Potential for improvement
- Watershed condition and trend



MANAGEMENT CONCERN 9: SPECIAL STATUS SPECIES



Needed Decisions

To resolve this management concern, answers are needed to the following questions:

- What management objectives should BLM establish for protection and enhancement of plant or animal special status species?
- What actions should BLM take to improve habitat conditions, aid in recovery efforts, and resolve resource conflicts for listed, proposed and candidate special status species?

Planning Criteria

To develop answers for the needed decisions identified above, BLM will consider:

- Input from Federal and State agencies and the scientific community
- Extent of species habitat, including current range, key areas, and potential habitat
- Species population goals and habitat requirements
- Effects of other resource uses
- Social and economic effects
- Conflicts with other uses
- Recovery plan goals and objectives and the potential to aid in recovery efforts

APPENDIX B-1

BLM MINERAL RESOURCES POLICY



INTRODUCTION

This statement sets forth BLM policy for management of mineral and energy resources on public land. It reflects the provisions of three important Acts of Congress: the Mining and Minerals Policy Act of 1970, the Federal Land Policy and Management Act (FLPMA) of 1976, and the National Materials and Minerals Policy, Research and Development Act of 1980. This policy statement represents a commitment by BLM to implement the policies of these statutes consistent with BLM's other statutory obligations.

The Mining and Minerals Policy Act of 1970 declares that it is the continuing policy of the Federal Government to foster and encourage private enterprise in the development of a stable domestic minerals industry and the orderly and economic development of domestic mineral resources.

FLPMA reiterates that the 1970 Mining and Minerals Policy Act be implemented and directs that public land be managed in a manner which recognizes the Nation's need for domestic sources of minerals and other resources. FLPMA also provides for improved inventory, planning, and decision processes.

The 1980 National Materials and Minerals Policy, Research and Development Act restates the need to implement the 1970 Act and requires the Secretary of the Interior to improve the quality of minerals data in Federal land use decision making. In April 1982, the President delivered to Congress the first annual report required by the 1980 Act, which provided specific guidance to implement these acts.

The BLM recognizes that public land is an important source of the Nation's mineral and energy resources, some of which are critical and strategic. BLM is responsible for making public land available for orderly and efficient development of these resources under principles of balanced multiple-use management.

The following principles will guide BLM in managing mineral resources on public land:

1. Except for Congressional withdrawals, public land shall remain open and available for mineral exploration and development unless withdrawal or other administrative action is clearly justified in the National interest.

2. BLM actively encourages and facilitates the development by private industry of public land mineral resources in a manner that satisfies National and local needs and provides for economically and environmentally sound exploration, extraction, and reclamation practices.

3. BLM will process mineral patent applications, permits, operating plans, mineral exchanges, leases, and other use authorizations for public land in a timely and efficient manner.

4. BLM's land use plans and multiple-use management decisions will recognize that mineral exploration and development can occur concurrently or sequentially with other resource uses. The Bureau further recognizes that land use planning is a dynamic process and decisions will be updated as new data are evaluated.

5. Land use plans will reflect geological, energy and mineral values on public land through more effective geology, energy and mineral resource data assessment.

6. BLM will supervise salable and leasable mineral operations to ensure proper resource recovery and evaluation, production verification, diligence and inspection and enforcement of the lease, sale or permit terms. BLM will receive Fair Market Value for mineral commodities where the laws provide.

7. The Bureau will maintain effective professional, technical, and managerial personnel knowledgeable in mineral exploration and development.

These principles will be implemented immediately and further clarified where necessary through specific guidance to the field.

APPENDIX B-2

MINERAL LEASING PROPOSALS



INTRODUCTION

Prior to offering lands for leasing, the New Mexico State Office Adjudication Staff reviews the records to determine if the minerals are available for leasing and if stipulations need to be attached to the lease form.

LEASE TERMS AND CONDITIONS

A BLM oil and gas and geothermal lease form includes the lease terms and conditions which cover subjects such as bonding, rentals and royalties, inspections, and safety. Also covered are protection of the environment, surface resources, and improvements.

The "conduct of operations" section of the lease form establishes the general requirements for the protection of surface resources and is referred to herein as "standard" lease terms. This section provides authority for the modification to sighting, design of facilities, timing of operations, and specification for interim and final reclamation measures to minimize adverse environmental impacts. The standard lease terms specifically require that the lessee contact the lessor prior to disturbing the surface and specify that the lessee may be required to complete minor inventories or short-term special studies.

STIPULATIONS

Stipulations are conditions of lease issuance which the local office of the BLM or other agency provide for additional and more stringent environmental protection within the terms of the lease contract. Without stipulations, proposed operations can be modified but not denied (except under certain specific, nondiscretionary statutes).

Stipulations will be used whenever mitigating measures deprive a lessee of basic lease rights. Because of this effect on lease rights, lessees must be aware of all stipulations prior to acceptance of a lease offer by BLM.

BLM policy is that the use of stipulations should be considered appropriate only when they are both necessary and justifiable. The contractual controls existing in the lease (the standard terms, regulations, and formal operational orders) provide substantial latitude within which the BLM may require modification of the sighting, design and timing of operations on leaseholds, and interim and final reclamation measures. They do not, however, allow the BLM to require modifications to proposed operations that would prevent economic extraction of otherwise commercial deposits of oil and gas. Therefore, if a lessee may be prevented from economically extracting fluid minerals, then stipulations are necessary and are to be used. A stipulation is justifiable if there are resources, values, uses, or users present that (1) cannot coexist with fluid minerals operations, or (2) cannot be adequately managed or accommodated on other lands for the duration of the operation, and (3) would provide greater benefits to the public than those of fluid minerals operations.

The content and accurate wording of stipulations are very important since stipulations become part of the lease contract. If the stipulations are ambiguous, potential lessees will be uncertain as to the value of the lease. Also, if poorly written, the BLM may fail to retain, within the terms of the lease, the right to deny operations. Therefore, to the extent feasible, stipulations are to specify the reason for the stipulation, the lands involved, and the probable effect of the stipulations on lease activities.

The existing and proposed fluid leasing stipulations to be used follow in this Appendix. Also shown are the standard formats for the No Surface Occupancy, Timing Limitation, and Controlled Surface Use stipulations.

The process through which the Special Management Areas (SMAs) were identified included stipulations to protect their values from fluid minerals leasing and development.

The analysis of potential impacts on fluid leasing was done on an interdisciplinary basis. The rationale

through which stipulations were assigned consisted of consideration of the resource value, consideration of the fluid mineral potential, and a determination as to which constraints could afford maximum protection while allowing for fluid mineral development. In those areas where resource values and fluid mineral exploration and development were found to be mutually exclusive, where protection of resource values was clearly in the public interest and where it was shown that a less restrictive stipulation could not adequately protect the resource value, the No Surface Occupancy stipulation was assigned.

Public land may be affected by discretionary and nondiscretionary closures which are presented in a lease as stipulations. A discretionary closure includes those lands where the BLM has determined that oil, gas, or geothermal leasing, even with the most restrictive stipulations (including No Surface Occupancy for the entire leasehold), would not adequately protect other resources, values, or land uses. Nondiscretionary closures include those lands that must be closed to oil, gas, or geothermal leasing for reasons beyond the discretion of the BLM. These are lands specifically precluded from fluid mineral leasing by law, regulations, Secretarial or Executive Order, or that have been otherwise formally closed by decisions reached beyond the scope of the BLM. The White Sands Missile Range (WSMR) and Doña Ana Range portion of Fort Bliss military areas are excluded from leasing by nondiscretionary closures.

Lands which are currently under lease will not be affected by stipulations. New leases for lands which are contained in SMAs will contain the stipulation or stipulations designated in the selected alternative. Activities normally deferred to activity planning, or other planning completed subsequent to the Resource Management Plan (RMP), include drill site location; field development and facility layout plans; utilization and communitization plans; transportation, power or pipeline routing plans (other than for major designated corridors); and others. Many of these activities are addressed after an Application for Permit to Drill (APD) is received. One APD every 3 years is expected for the life of this RMP.

All future geophysical exploration, leasing, and development proposals are to be reviewed for conformance with the RMP to ensure the availability of land for these activities and to ensure compliance with applicable mitigating measures as identified in the RMP. In certain cases, geophysical exploration may be restricted or excluded. Any site-specific reviews required by operating orders, regulations, or

to ensure National Environmental Policy Act (NEPA) compliance will also need to be performed at appropriate times.

WAIVERS, EXCEPTIONS, AND MODIFICATIONS TO LEASE STIPULATIONS

Waivers, exceptions, and modifications to existing lease stipulations can be granted if circumstances or relative resource values change or if the lessee demonstrates that operations can be conducted without causing unacceptable impacts. A waiver is a permanent exemption to a lease stipulation. An exception is one-time, case-by-case exemption to a stipulation. A modification is a change to the provisions of a stipulation, either temporarily or for the term of the lease.

Any requests for waivers, exceptions, or modifications in the Resource Area will involve an analysis of associated impacts. Depending on the severity of these impacts, the request may be (1) granted by the Area Manager, (2) publicly posted for 30 days as required by the Leasing Reform Act of 1987, or (3) analyzed through an amendment to the RMP.

MINERAL LEASING PROPOSALS

The following are existing leasing stipulations and areas closed to leasing.

Not Open to Leasing (WSAs):

- Aden Lava Flow WSA
- Alamo Hueco Mountains WSA
- Apache Box WSA
- Big Hatchet Mountains WSA
- Blue Creek WSA
- Cedar Mountains WSA
- Cooke's Range WSA
- Cowboy Spring WSA
- Florida Mountains WSA
- Gila Lower Box WSA
- Guadalupe Canyon WSA
- Las Uvas Mountains WSA

Not Open to Leasing (WSAs):

- Organ Mountains WSA
- Peloncillo Mountains WSA
- Robledo Mountains WSA
- West Potrillo Mountains/Mt. Riley WSA

Not Open to Leasing (SMAs):

Aden Lava Flow RNA
Alamo Hueco Mountains ACEC
Antelope Pass RNA
Apache Box ACEC
Bear Creek ACEC
Big Hatchet Mountains ACEC
Central Peloncillo Mountains ACEC
Cooke's Range ACEC
Cowboy Spring ACEC
Doña Ana Mountains ACEC
Florida Mountains ACEC
Gila Lower Box ACEC
Gila Middle Box ACEC
Granite Gap ACEC
Guadalupe Canyon ACEC
Kilbourne Hole NNL
Lordsburg Playa RNA
Northern Peloncillo Mountains ACEC
Old Town ACEC
Organ/Franklin Mountains ACEC
Paleozoic Trackways RNA
Robledo Mountains ACEC
San Diego Mountain ACEC
Uvas Valley ACEC

Open to Leasing with Stipulations:

Recreation and Public Purpose (> than 40 acres)

Airports
City of Las Cruces Sludge Site
Doña Ana Prison Site
Las Cruces Shooting Range
Lord's Ranch
NMSU Observatory Site
Northwestern University Observatory Site
School Sites
Spring Canyon Park

Other Areas

Jornada Experimental Range
NMSU College Ranch
White Sands Missile Range Safety
Evacuation Area

Open to Leasing with No Surface Occupancy:

Butterfield Trail (within ¼ mile of trail)
Continental Divide National Scenic Trail
(within ½ mile of trail)
Los Tules ACEC
Rincon ACEC (within 100 feet of petroglyphs)

Serial No. _____

TIMING LIMITATION STIPULATION

No surface use is allowed during the following time period(s). This stipulation does not apply to operation and maintenance of production facilities.

On the lands described below:

For the purpose of (reasons):

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820.)

Form #/Date

Serial No. _____

CONTROLLED SURFACE USE STIPULATION

Surface occupancy or use is subject to the following special operating constraints.

On the lands described below:

For the purpose of:

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820.)

Form #/Date

APPENDIX C-1

LANDS AND MINERALS DISPOSAL POLICY



SURFACE ESTATE DISPOSAL POLICY

All surface estate disposal actions require the preparation of a mineral report to assess the mineral potential of the property prior to disposal.

Any potential interference with mineral development will be considered through the disposal process. The creation of a split surface mineral estate causing surface interference with Federal mineral development will be avoided to the extent possible. Any surface disposal action within the Rio Grande Valley will be analyzed for potential impacts to Federal mineral material development.

The following procedures will be followed for the various types of surface estate land disposal actions in the Mimbres Resource Area.

EXCHANGES

Disposal by exchange must meet the criteria outlined in the Federal Land Policy and Management Act (FLPMA) Sec. 206, whereby it is determined that the public interest will be well served by making the proposed exchange. Exchanges outside of disposal areas may be possible if it is clearly determined that it is in the best interest of the public. Exchanges that would result in the acquisition of non-public lands in disposal areas will not be considered. The following principles will guide the Mimbres Resource Area in its land exchange program.

1. The Mimbres Resource Area will continue to strive to process mutually benefitting, public interest land exchanges in a timely and efficient manner.
2. The preferred method of acquisition is through exchanges rather than purchase. This will reduce the expansion of Federal real estate holdings and help to ensure the integrity of State and local tax bases.

3. Comments from the State, local governments, and the general public shall be sought and considered before completion of each exchange.

4. Patent and deed reservations and conditions will be kept to the absolute minimum necessary to complete the transaction. Rights of third parties holding rights-of-way and other legal interests in the exchanged lands will be protected.

5. The generally preferred rule is for both surface and subsurface (mineral) estates to be traded in an exchange. However, due to third party encumbrances, or difficulties in the valuation process, it may be preferable to complete certain exchanges with reservations. Such exceptions to the generally preferred rule are to be made on a case-by-case basis.

6. Exchanges shall be utilized to consolidate or unite the surface and subsurface estates for both the Federal Government and non-Federal owners in split or mixed-estate situations.

7. Exchanges may be utilized to effect ownership and management area boundary changes and to form more logical and efficient land and resource management areas for both the BLM and non-Federal owners.

8. Whenever the law permits, expenses incurred by BLM on exchange actions for the benefit of other Federal agencies shall be recovered from the benefitting agency. The BLM shall not attempt to recover nominal costs.

9. When an exchange involves the cancellation of a grazing permit or lease, the compensation for rangeland improvements and 2-year notification requirements of Section 402(g) of FLPMA and 43 Code of Federal Regulations (CFR) 4110 will be met.

10. The acquisition of non-public lands in Special Management Areas or lands containing unique or unusual historic, cultural, mineral, recreational, scientific, scenic or wildlife habitat values will be

pursued as a first priority. Likewise, proposals that would convey lands out of Federal ownership that possess special values will not be considered when formulating any exchange proposals.

SALES

Property selected for sale must be identified as being potentially suitable for disposal in an approved land-use plan and must meet one or more of the criteria outlined in FLPMA Sec. 203. Proposals that would convey non-public lands within disposal areas will not be considered. In addition, if the tract is 2,500 acres or more, procedures outlined in Sec. 203(c) must also be followed. The disposal criteria is as follows:

- Such tract because of its location or other characteristics is difficult and uneconomic to manage as part of public land, and is not suitable for management by another Federal department or agency; or
- Such tract was acquired for a specific purpose, and the tract is no longer needed for that or any other Federal purpose; or
- Disposal of such tract will serve important public objectives, including but not limited to expansion of communities and economic development, which cannot be achieved prudently or feasibly on land other than public land and which outweighs other public objectives and values, including but not limited to recreation and scenic values, which would be served by maintaining such tract in Federal ownership.

Conformity with one or more of these criteria must be determined during the preparation of an environmental assessment (EA). Anticipated environmental impacts to existing resources such as minerals, wildlife, recreation, range, cultural resources, wilderness values, floodplains, paleontological values, visual resources, areas of critical environmental concern (ACEC), wetlands, special status (T&E) species and habitats, wild and scenic rivers, prime or unique farmlands, and social and economic conditions, will be considered during the preparation of each EA. The EA will be used to determine whether or not the subject parcel is truly suitable to be offered for sale. Once this

determination has been made, a fair market appraisal of the property will be completed to set the minimum acceptable bid.

Also, assessed is a determination as to what method of sale will be used if the tract is in fact deemed suitable for sale. Several factors are considered in determining the method of sale which include, but are not limited to: the needs of State or local governments, adjoining landowners' interests and concerns, public policies, historical uses, and equitable distribution of the land. The Mimbres Resource Area policy for determining the sale method is as follows:

1. Competitive Bidding is the preferred method of sale and will be used where clearly there would be a number of interested parties bidding for the land and they could make practicable use of the land regardless of adjoining landownership. Competitive bidding will also be used where the land is clearly within a developing or urbanizing area and land values are increasing due to their location and interest on the competitive market. If there are no overriding bases for modifying competition or direct sale, the land will be offered through competitive bidding. Normal practice for competitive sales is to first offer the land for sale by sealed bid; if unsold, offer for sale over-the-counter.
2. Modified Competitive Bidding may be used to permit the existing grazing user or adjoining landowner to meet the high bid or to limit the number of persons permitted to bid on the land. These sales would normally be for lands not located near urban expansion areas or with rapidly increasing land values, when there is a need to avoid jeopardizing existing use of adjacent land, to assure compatibility of the possible uses with adjacent lands, and avoid dislocation of existing users. This procedure will allow for limited competitive bidding to protect ongoing use.
3. Direct (without competition) Sales may be used when, in the opinion of the authorized officer, the public interest would be served. Examples include but are not limited to:
 - A tract identified for transfer to State or local governments or nonprofit organizations; or

- A tract identified for sale that is an integral part of a project of public importance and speculative bidding would jeopardize the timely completion and economic viability of the project; or
- There is a need to recognize authorized use such as an existing business which would be threatened if the tract were purchased by other than the authorized user; or
- A tract is surrounded by land in non-Federal ownership and does not have public access; or
- The lands support inadvertent unauthorized use or occupancy.

4. When lands have been offered for sale under direct or modified bidding procedures and they remain unsold, then the land will be re-offered by the competitive bidding procedure. In no case will the land be sold for less than fair market value.

Public participation and intergovernmental coordination will be sought and encouraged during the development of each sale schedule. Where a decision is made to dispose of land within a grazing allotment, permittees and lessees will be given a 2-year notice of the planned disposal in accordance with 43 CFR 4110.4-2. If the 2-year notification period is not waived, the parcel may not be offered for sale until the end of the notification period. Grazing permittees/lessees will receive fair market value (less salvage value) for their interest in authorized permanent rangeland improvements located on public land in accordance with 43 CFR 4120.6-6. If floodplain tracts are designated for disposal, the patent will contain language indemnifying the United States against any claims for loss or injury due to flooding.

RECREATION AND PUBLIC PURPOSES (R&PP) PATENTS

The Mimbres Resource Area will continue to issue patents to qualified governmental and nonprofit entities for public parks, recreational sites, and historical sites under the Recreation and Public Purposes (R&PP) Act throughout the life of the Resource Management Plan (RMP). These patents may be issued at less than fair market value as outlined in 43 CFR 2740. Applications for patent of public land under the R&PP Act will be processed as a Mimbres Resource Area priority under the

requirements of the National Environmental Policy Act (NEPA) and will always be subject to public review. No sanitary landfill sites will be patented in the Mimbres Resource Area pursuant to the R&PP Act until regulations implementing the 1988 amendment to the R&PP Act are completed. R&PP applications may be entertained, in either retention or disposal zones; yet, a determination must always be made that the disposal action is in the public's best interest.

MINERAL ESTATE DISPOSAL POLICY

Disposal of the mineral estate is possible under Sections 206 and 209 of FLPMA. It is the policy of the BLM to avoid disposing of the surface estate while retaining the mineral estate unless there are areas of "known mineral value", as defined in 43 CFR 2720.0.5. In areas of "known mineral value", the mineral estate (and the surface estate if substantial interference to development would result) should be retained except as described below.

Prior to any land disposal a "mineral value" determination must be made following a field reconnaissance by a BLM mineral examiner. A mineral report must be written to evaluate the leasable, locatable, and saleable mineral potential of each proposed sale or exchange. Under FLPMA, the conclusion of the mineral examiner will include an opinion as to whether the lands have "known mineral values". If professional judgment concludes that the land does not contain "known mineral values," the surface and subsurface estate may be conveyed, subject to any existing mining claims(s) or mineral leases.

A mining claim of record under Section 314 of FLPMA generally prevents an exchange or sale. If the land is under mining claim, the surface should be retained under Federal ownership or the claim examined for validity. However, a validity examination may be waived and the BLM may proceed with the sale or exchange of both the surface and the mineral estate, subject to the existing mining claim(s) if:

- The land meets the criteria for disposal as determined through land-use planning, and
- The land has no "known mineral value" as determined by a BLM geologist or mining engineer, and

- The prospective patentee is willing to accept defeasible title, preserving whatever rights the mining claimant may have. Conveyance of the surface and mineral estate would be subject to "existing mining claim(s)," allowing the mining claimant to apply for and receive full fee patent if a valid discovery was made prior to the date of transfer under Sections 206 or 209, or alternatively, receive patent to the mineral estate only if discovery were made after the original conveyance.

The BLM will proceed with a sale or exchange only after reasonable efforts have been made to secure relinquishment of the mining claim(s). If the mining claimant opposes the action, the Notice of Realty Action (NORA) protest procedures would apply.

For a direct sale or an exchange, the proponent must be informed early and fully of the potential title conflicts and rights of the mining claimant under the law. The BLM should then proceed only if these conditions are acceptable to the proponent. For a proposed competitive sale, the field office must carefully consider the effect on sale price, likelihood of success, and interests to be served if the sale is made subject to the rights of the mining claimant. If it is clearly in the public interest to proceed, the BLM must secure purchaser waiver of any liability against the United States in the event of subsequent title litigation.

In cases where lands are patented without a reservation of locatable minerals, a FLPMA patentee is believed to have standing to bring private contest (43 CFR 4.450) against the mining claim(s). Should he or she do so, the burden is upon the patentee to prove lack of discovery. If the patentee is successful, or if the claims are abandoned or relinquished, the land would not be open to further location, and the patentee would receive full title to the involved locatable minerals.

Mining claim location and mineral leases for lands in which the surface title has passed under FLPMA disposal authority may be made only after regulations providing for such locations or leasing have been made. Because these regulations have not as yet been issued, lands disposed of under FLPMA are subject to de facto withdrawal. Lands disposed of under FLPMA are not withdrawn from mineral material sales or free-use permits.

All minerals must be reserved if the Federal lands are conveyed out of Federal ownership pursuant to

FLPMA disposal authority, except in the limited instances that follow:

1. Sales

a. If the public land proposed for sale is determined to have "known mineral values" for locatable, leasable, or saleable minerals, one of the following courses of action may be taken:

(1) Reject the offer to purchase or cancel the offer of sale.

(2) Dispose of the surface estate and reserve all of the mineral interests to the United States.

(3) Dispose of the surface and convey all or part of the mineral interests under terms set forth in Section 209(b) of FLPMA.

b. If the lands have no "known mineral values," the mineral interests may be simultaneously disposed of with the surface estate under authority of Section 209(b) FLPMA.

2. Exchanges

a. Public land which does not have "known mineral values" may be offered in exchange without any mineral reservation. This will apply whether or not the non-Federal party in an exchange controls the minerals under his or her land.

b. If the public land has some potential for mineral development, reserving the mineral interests is not mandatory as long as the values can be equalized by the payment of money and so long as the payment does not exceed 25 percent of the total value of the land.

In any case, normally it is desirable to keep surface and mineral ownership together in an exchange, whenever possible, to eliminate future problems associated with split-estate ownership.

c. If public land in an exchange is determined to have "known mineral values" for locatable, leasable, or saleable minerals, it may be in the public interest to cancel the offer, depending upon the significance of the deposits. The leasable minerals along can be reserved if significant.

APPENDIX C-2 SET-ASIDES



The following is a list of existing set-asides under Memorandums of Understanding (MOUs) with the Las Cruces School District No. 2 and City of Las Cruces as a result of the Elena Gallegos Grant Exchange Amendment (1982) and Southern Rio Grande MFP Amendment (1986):

LAS CRUCES SCHOOL DISTRICT NO. 2

SITE	LEGAL DESCRIPTIONS			
Elementary School No. 1 (21.15 Acres)	Lot 10	Sec. 4	T. 23 S.	R. 2 E.
Elementary School No. 2 (16.40 Acres)	Lot 12	Sec. 10	T. 23 S.	R. 2 E.
Elementary School No. 3 (15 Acres)	S $\frac{1}{2}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$	Sec. 28	T. 23 S.	R. 2 E.
	SE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$	Sec. 28	T. 23 S.	R. 2 E.
Elementary School No. 4 (15 Acres)	SW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$	Sec. 17	T. 22 S.	R. 2 E.
	W $\frac{1}{2}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$	Sec. 17	T. 22 S.	R. 2 E.
Junior High School No. 1 (30 Acres)	W $\frac{1}{2}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$	Sec. 28	T. 22 S.	R. 2 E.
	W $\frac{1}{2}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$	Sec. 28	T. 22 S.	R. 2 E.
	W $\frac{1}{2}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$	Sec. 28	T. 22 S.	R. 2 E.
Elementary or Mid-School Site (41.89 Acres)	Lot 7	Sec. 9	T. 23 S.	R. 2 E.
Senior High (60 Acres)	SE $\frac{1}{4}$ NE $\frac{1}{4}$	Sec. 33	T. 22 S.	R. 2 E.
	E $\frac{1}{2}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$	Sec. 33	T. 22 S.	R. 2 E.
Highland Elementary School (18 Acres)	E $\frac{1}{2}$ NW $\frac{1}{4}$	Sec. 28	T. 22 S.	R. 2 E.
Ocate High School (50 Acres)	SW $\frac{1}{4}$ NW $\frac{1}{4}$	Sec. 23	T. 22 S.	R. 2 E.
	N $\frac{1}{2}$ N $\frac{1}{2}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$	Sec. 23	T. 22 S.	R. 2 E.
School Site No. 2 (50 Acres)	S $\frac{1}{2}$ N $\frac{1}{2}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$	Sec. 18	T. 22 S.	R. 3 E.
	S $\frac{1}{2}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$	Sec. 18	T. 22 S.	R. 3 E.
	SW $\frac{1}{4}$ NW $\frac{1}{4}$	(PORTION NORTH OF U.S. 70)		
School Site No. 3 (75 Acres)	S $\frac{1}{2}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$	Sec. 13	T. 24 S.	R. 2 E.
	S $\frac{1}{2}$ N $\frac{1}{2}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$	Sec. 13	T. 24 S.	R. 2 E.
	N $\frac{1}{2}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$	Sec. 13	T. 24 S.	R. 2 E.
	E $\frac{1}{2}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$	(ADJACENT TO FRONTAGE ROAD		
	E $\frac{1}{2}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$	Sec. 14	T. 24 S.	R. 2 E.)
School Site No. 4	SE $\frac{1}{4}$ S $\frac{1}{2}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$	Sec. 12	T. 24 S.	R. 2 E.

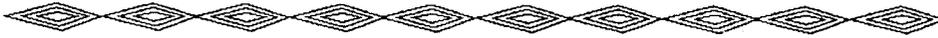
APPENDIX C-2 (Concluded)

CITY OF LAS CRUCES

SITE	DESCRIPTION	ACREAGE
<u>Joint Facilities</u>		
Fire and Police Departments	T. 22 S., R. 2 E.,	25
Wastewater Treatment Plant	Sec. 28, W $\frac{1}{2}$ NW $\frac{1}{4}$	20
Animal Shelter		20
Southwest Mental Health		10
<u>South Fire Station and City Library Annex</u>	T. 22 S., R. 2 E., Sec. 4, Lot 11	13.23
<u>Parks</u>		
South Park	T. 22 S., R. 2 E., Sec. 33, Lot 2	25.64
North Park	T. 22 S., R. 2 E., Sec. 20, NE $\frac{1}{4}$ NW $\frac{1}{4}$, E $\frac{1}{2}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$, S $\frac{1}{2}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$, SW $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$, N $\frac{1}{2}$ N $\frac{1}{2}$ SE $\frac{1}{4}$ NW $\frac{1}{4}$	85
North Fire Substation	T. 22 S., R. 2 E., Sec. 20, N $\frac{1}{2}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$	5
Park on West Park	T. 23 S., R. 1 W., Sec. 27, W $\frac{1}{2}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$	20

APPENDIX C-3

MEMORANDUMS OF UNDERSTANDING AND COOPERATIVE AGREEMENTS



- NM-030-10 The Soil Conservation Service and BLM (Cooperative agreement for study sites for the Desert Soil-Geomorphology Project. These sites are 2½ acres each, with the primary purpose of gathering basic information on soils and soil-geomorphic relationships.)
- NM-030-11 The NMSU College Ranch and BLM (Cooperative agreement for procedures for management of leasable materials within College Ranch.)
- NM-030-13 National Aeronautic and Space Administration and the Corps of Engineers (A cooperative agreement on lands in the northeast portion of the County for low profile management. No new roads, large concentrations of people, or conflicting new uses will be allowed.)
- NM-030-14 Southern Rio Grande Council of Governments (COG) and BLM (Involvement by COG in development and revision of land use plans in Dona Ana County.)
- NM-030-15 Southern Rio Grande Council of Governments (COG) and BLM (Involvement by COG in development and revision of land use plans in Grant, Hidalgo and Luna Counties.)
- NM-030-21 Dona Ana County and BLM (Cooperative agreement to preserve the County's option to expand the Southern Dona Ana County Airport.)
- NM-030-23 Las Cruces School District No. 2 and BLM (Memorandum of Understanding to set aside certain parcels for future school sites.)
- NM-030-24 City of Las Cruces and BLM (Memorandum of Understanding that identified certain Federal lands for future development needs of the City of Las Cruces.)
- NM-030-26 Grant County Commissioners and BLM (Memorandum of Understanding establishing procedures for coordinating the planning and program operations at local level, ensuring that local viewpoints are taken into account in land use decision-making.)
- NM-030-27 Luna County Commissioners and BLM (Same as NM-030-26.)
- NM-030-28 Hidalgo County Commissioners and BLM (Same as NM-030-26.)
- NM-030-31 Dona Ana County Commissioners and BLM (Same as NM-030-26.)
- NM-030-37 Dona Ana County and BLM (Memorandum of Understanding closing La Union Landfill to liquid waste, installing a locked gate, posting signs and enforcing.)
- NM-030-45 National Aeronautics and Space Administration and BLM (Memorandum of Understanding to recognize land use needs of NASA (4,707.13 acres). Multiple use management to be handled by BLM-hazardous situations handled by NASA. Prohibits installation of domestic or agricultural water wells until groundwater contamination is eliminated.)

APPENDIX C-4

LAND TENURE ADJUSTMENT DECISIONS- SOUTHERN RIO GRANDE PLAN AMENDMENT (1986)



The following section contains land tenure adjustment decisions carried forward from the Southern Rio Grande Plan Amendment (1986).

DONA ANA COUNTY

DISPOSAL (75,304 acres)

Dispose of public land on the East Mesa except for areas with critical resources and areas where retention is required by laws, regulations, or policies (65,931 acres). Public land in the Hueco Bolson will be retained until a final decision is made on the right-of-way (ROW) applications of the City of El Paso Water Utilities Public Service Board. Public land in T. 26 S., R. 5 E., Section 31 (359.07 acres) will be retained until its potential as an ACEC can be evaluated in an RMP scheduled to begin in 1988.

Dispose of selected public land on the West Mesa that has been identified by the City of Las Cruces and the State of New Mexico (3,936 acres).

Dispose of public land that is difficult and uneconomical to manage or where interest has been shown (5,437 acres).

RETENTION (1,031,383 acres)

Retain the balance of the public land that is managed for multiple-use values and selected special management areas (1,014,012 acres). On the East Mesa, the Organ Mountain Recreation Lands (OMRLs), the Organ Mountains Wilderness Study Area (WSA), and the Organ Mountains ACEC will be retained.

Retain areas with critical resources (17,371 acres). On the East Mesa, the Dona Ana Recreation Area

(2,865 acres) will be retained for recreation resources; the Franklin Mountains (9,831 acres) will be retained for endangered plant, recreation, and visual resources; and the Organ/Franklin Mountains Corridor (4,675 acres) will be retained for recreation and wildlife resources. The Franklin Mountains and the Organ/Franklin Mountains Corridor might have ACEC potential, so those areas will be managed under temporary special management until a decision is made in an RMP, scheduled to begin in 1988. The temporary special management will include (a) preserving the public availability of recreation opportunities on the land, (b) protecting the natural systems on the land to prevent degradation of wildlife values, and (c) ensuring that the land remains under management control by the BLM and is not appropriated for any other use.

ACQUISITION (45,258 acres)

Pursue acquisition of lands in and immediately adjacent to special management areas: the six WSAs, the OMRLs, the Organ Mountains ACEC, and the Kilbourne Hole National Natural Landmark (40,493 acres). This includes possible relinquishment of 9,794 acres of Ft. Bliss withdrawn land north of Soledad Canyon in the Organ Mountains.

Pursue acquisition of lands identified by BLM and by the public for BLM management programs (4,765 acres). These lands are located in the Rio Grande Riparian Area (2,310 acres), the Old Refuge Area (483 acres), the Franklin Mountains (1,292 acres), and the Organ/Franklin Mountains Corridor (680 acres). As the State and private lands in the Franklin Mountains and the Organ/Franklin Mountains Corridor are acquired, those lands will be managed under temporary special management as described under the Retention heading.

STATE LAND EXCHANGE AREA

DISPOSAL (10,000 ACRES)

Dispose of up to 10,000 acres of public land identified by the State of New Mexico on the East Mesa as part of the proposed State Land Exchange. Within the 10,000 acres, a total of 175 acres will continue to be set aside for existing sand and gravel claims and existing Recreation and Public Purposes (R&PP) leases. In addition, the following 340 acres will be set aside for future R&PP leases: T. 22 S., R. 2 E., Section 23, SW ¼NW ¼N ½N ½NW ¼SW ¼, Section 25, NW ¼N ¼, Section 26, E ½NE ¼; T. 22 S., R. 3 E., Section 18, S ½N ½NW ¼NW ¼, S ½NW ¼NW ¼, SW ¼SW ¼ (North of Highway 70).

ACQUISITION (5,000 acres)

Acquire 5,000 acres of State land in the Organ Mountains as part of the proposed State Land Exchange.

SUMMARY

A summary of the Proposed Plan components and acreage is presented below:

Dona Ana County

Disposal	75,304
East Mesa	65,931
West Mesa	3,936
Land Difficult and Uneconomical to Manage or Where Interest Shown	5,437
Retention	1,031,383
West Mesa, Organ Mountains	1,014,012
Dona Ana Recreation Area	2,865
Franklin Mountains	9,831
Organ/Franklin Mountains Corridor	4,675
Acquisition	45,258 ^{a/}
Lands in WSAs, Organ Mountains, and Kilbourne Hole	40,493 ^{a/}
Rio Grande Riparian Area	2,310
Old Refuge Area	483
Franklin Mountains	1,292
Organ/Franklin Mountains Corridor	680

State Land Exchange Area

Disposal	10,000
Retention	0
Acquisition	5,000

Note: ^{a/}Includes 2,080 acres of non-Federal subsurface (mineral) estate within and immediately adjacent to the West Potrillo Mountains and Mount Riley WSAs.

APPENDIX D-1

MIMBRES RESOURCE AREA

ALLOTMENT CATEGORIES

	CATEGORY M (Maintain)	CATEGORY I (Improve)	CATEGORY C (Custodial)
MANAGEMENT OBJECTIVES	--Maintain or improve existing situation.	--Improve existing resource conditions.	--Prevent deterioration and manage in a custodial manner.
GENERAL CHARACTERISTICS	<ul style="list-style-type: none"> --Present ecological range condition is satisfactory. --Present management is satisfactory. --Moderate to high potential for vegetation production and is producing at or near potential. --Limited or no resource conflicts exist with livestock grazing. --Land status may or may not be considered (includes low percentage of public land, scattered tracts, or checkerboard land patterns within allotments). --Positive return on investment exists. 	<ul style="list-style-type: none"> --Present ecological range condition is unsatisfactory. --Trend in range condition is apparently downward. --Present management practices are inadequate to meet long-term objectives. --Moderate to high potential for vegetation production and is producing at low to medium fair levels. --Resource conflicts are evident with livestock grazing. --Land status may or may not be considered (similar to Category M). --Positive economic return on public investment exists. 	<ul style="list-style-type: none"> --Present ecological range condition is variable. --Vegetative production is relatively low. --Limited potential for improvement. --Limited or no resource conflicts exist with livestock grazing. --No positive economic return on public investment is likely.
CATEGORY CRITERIA	<p>--An allotment must meet all of the following conditions:</p> <ol style="list-style-type: none"> 1. Has no significant resource conflicts. 2. Has only a moderate potential for improvement in forage production. 3. Has a satisfactory range condition rating and a static or improving range trend. <p><u>OTHER CONSIDERATIONS</u> Contains 30 percent or more public land or more than 1,920 acres of public land.</p>	<p>--An allotment must meet any one of the following 3 conditions:</p> <ol style="list-style-type: none"> 1. Has a potentially significant resource conflict. 2. Has a high to medium potential for improvement in vegetation. 3. Has an unsatisfactory range condition rating of 50 or less and a static or declining trend in range condition. <p><u>OTHER CONSIDERATIONS</u> Contains 30 percent or more public land or more than 1,920 acres public land.</p>	<p>--An allotment must meet all of the following conditions:</p> <ol style="list-style-type: none"> 1. Has a low potential for improvement in forage production. 2. Has no significant resource conflicts. <p><u>OTHER CONSIDERATIONS</u> Contains less than 30 percent public land or less than 1,920 acres public land.</p>
MANAGEMENT ACTIONS	<ul style="list-style-type: none"> --Livestock use would remain the same or may be increased. --High degree of management flexibility through consultation. --Moderate to low intensity supervision and monitoring. --Range improvements by private investment and range betterment funds. --Development of management plans primarily by other agencies or institutions. 	<ul style="list-style-type: none"> --Livestock use may increase or could be decreased to meet allotment objectives. --Proposals for resolving identified issues and conflicts include: <ol style="list-style-type: none"> 1. Season of use management. 2. Change in class or kind of livestock. 3. Adjust numbers of livestock. 4. Distribution management, through range improvements or use of salt/supplement. 5. Development of management plans. --High intensity supervision and monitoring. 	<ul style="list-style-type: none"> --Livestock use would remain the same, be excluded or authorized on a seasonal basis. --High degree of management flexibility. --Low intensity supervision and monitoring. --Range improvements by private investment or limited use of range betterment funds. --Development of management plans primarily by other agencies or institutions.

: BLM Files 1990.

: Any parcel of public land within an allotment, regardless of size, with an identified significant resource conflict, will qualify for the "I" category.

APPENDIX D-2 ALLOTMENT STATUS AND CATEGORY

Allotment Number	Allotment Name	Total Preference	Management Category
01001	Beacon Hill	459	I
01002	Animas	459	C
01003	Bull Creek	458	C
01004	Maverick Flat	649	M
01005	Mount Baldy	264	M
* 01006	South Pyramid	3,336	I
01007	Blue Creek	3,360	M
01008	Whitmire Pass	1,161	I
* 01009	San Simon Cienega	2,492	I
01010	Steins Mountain	1,480	I
* 01011	Copper Canyon	478	I
01012	Continental Divide	1,132	I
01013	Willow Creek	600	C
01014	Lordsburg Mesa	1,080	C
01015	Thompson Canyon	2,772	I
01016	Sunset Dam	288	I
01017	Rough Creek	531	I
01018	Pratt	684	M
01019	Pratt Peak	588	I
* 01020	Big Cat Ranch	1,909	M
01021	Lightning Dock	540	M
01022	Cottonwood Springs	584	I
01023	Truesdale Canyon	468	I
01024	Shakespeare Ranch	689	M
01025	Rainbow Wash	1,344	I
01026	Gold Hill Canyon	1,380	I
* 01027	Wood Canyon	972	I
01028	Johns Canyon	288	C
01029	Riley Springs	193	M
01030	Animas Mountains	1,152	I
01031	Tank Mountain Community	60	M
01032	Four Mile Hill	628	I
01033	Elderberry Canyon	24	M
** 01034-1	Box M Ranch	1,852	I
01035	Junction	120	C
01036	Steeple Rock	552	I
* 01037	Carisle	2,699	I
01038	Jose P. Canyon	276	C
01039	Martin Place	1,848	M
* 01040	Bass Draw	4,084	I
01041	L. B. Pasture	632	M
01042	Bobcat Hill	192	C
01043	Goat Canyon	36	C
* 01044	Granite Gap	1,218	I
01045	Canador Peak	961	I

APPENDIX D-2 (Continued)

ALLOTMENT STATUS AND CATEGORY

Allotment Number	Allotment Name	Total Preference	Management Category
01046	Croom	468	M
01047	Brushy Mountain	4,158	I
01048	Cedar Mountain	1,750	I
01049	NM Department Game & Fish	60	C
01050	Rockhouse Canyon	2,232	I
01051	Redrock Canyon	720	I
01052	Antelope Pass	612	M
01055	Lordsburg Draw	996	I
01057	Swallow Fork Peak	894	I
01058	Clinton E. Dunagan	156	M
01059	Mud Springs Ranch	6,240	I
01060	Road Forks	738	I
01061	Steeple Rock	324	M
* 01063	Antelope Crossing	1,674	I
01064	Cotton City	84	M
01065	Hot Wells	96	C
01066	Pacific Western	1,056	I
01068	Playa	533	C
01069	Three Mile Hills	946	I
01070	Lava Flow	1,260	I
01071	Weatherby Ranch	692	I
01072	Gage Siding	298	C
01073	Gillespie Mountain	2,760	I
01074	Table Top Mtn.	216	C
01075	Redrock	180	C
01076	Hugh's Canyon	288	I
01077	Brockman Homestead	348	M
01078	Caprock Mountain	3,950	I
01079	Mondel Flats	182	M
01080	Young Place	12	M
01081	Raccoon Place	1,464	I
01082	China Pond	648	M
01083	East Divide	480	M
01085	Curry Place	360	M
01086	Burro Springs	3,276	I
01501	Mountain Place	528	M
01502	Croom Mrs. Joe Lease	24	M
01504	Croom Lease	120	M
01505	Clinton Dunagan	192	M
01506	Dunagan L. & C. Co. Lease	816	M
01507	Rand Lease	24	M
01508	Willy Wright Canyon	346	M
01509	Gray Ranch Leases	600	M
01510	Alamo Hueco	4,548	I
01512	Dupree Canyon	1,140	I
01513	Cottonwood Lease	108	M

APPENDIX D-2 (Continued)

ALLOTMENT STATUS AND CATEGORY

Allotment Number	Allotment Name	Total Preference	Management Category
01514	Burro Pass	876	I
01515	Kambitch Lease	132	M
01516	Kimble Lease	324	M
01517	Klump Lease	576	M
01518	McCants Lease	36	M
01519	Cascabel Lease	192	M
01520	Post Office Canyon	336	M
01521	Roos Lease	108	M
01522	Richards Lease	180	M
01523	Rodeo Lease	144	M
01524	Roark Lease	12	M
01525	Black Canyon	576	I
01526	Owl Canyon	2,511	M
01527	Winkler Lease	504	M
01528	Klump Lease II	312	M
01533	Woodard Place	36	M
01534	Big Creek	324	M
01536	Darnell Lease	324	M
01537	Davis Lease	24	M
01538	Walker Pasture	204	M
01539	Darnell Billy Lease	156	M
01540	Dunagan's Lease	204	M
01541	Hidalgo Land Lease	60	M
01542	Walter Jr. Lease	312	M
01544	Johnson Muriel Lease	372	M
01545	Kerr Lease	24	M
01546	Dunagan C. E. Lease	24	M
01547	Reynolds Lease	12	M
01548	Hadley Lease	12	M
01549	Timberlake Lease	948	M
01550	Hughes Lease	120	M
01551	Mahan Lease	24	M
01553	Stewart Trust	36	M
01554	Wamel Lease	42	M
01556	Keeler Lease	540	M
01557	Maverick Spring	156	C
01560	Muir Exit Lease	288	M
02001	Akela West	156	M
02002	Akela South	432	I
02003	Columbus Community	1,116	C
* 02004	7 Spear Ranch	3,612	I
02005	Florida Ranch	828	M
02006	Victorio Ranch	7,788	M
02007	S. Spear Ranch	444	I
02008	Florida Foothills	516	I
02009	Hidden Valley Ranch	564	I

APPENDIX D-2 (Continued)

ALLOTMENT STATUS AND CATEGORY

Allotment Number	Allotment Name	Total Preference	Management Category
* 02010	Hachita	876	I
* 02011	Apache Hills	1,796	I
02012	Butterfield	504	M
* 02013	Burdick Hills	17,856	I
* 02014	Cedar Grove	3,264	I
02015	Hoppy Place	1,032	I
02016	Mountain Ranch	1,248	M
02017	Flying W Ranch	3,612	I
* 02018	Hermanas Ranch	1,772	I
02019	Kil Ranch	1,200	I
02020	T Bar Ranch	432	M
02021	Blacktop	538	M
02022	U Bar Ranch	7,608	I
02023	Playas Ranch	4,066	M
02024	Heard Ranch	1,340	I
02025	Florida Mtn. Ranch	1,983	I
02026	Sam Teague, et al	288	M
* 02027	Hatchet Ranch	13,869	I
02028	Joe Hervol	276	C
02030	Mimbres Mtn. Rush	1,872	I
02031	Akela North	420	C
02032	W. R. Johnson & Son	9,820	I
02033	San Juan Ranch	2,424	I
02035	Spanish Stirrup	1,500	I
02036	Rainbow Ranch	1,848	I
02037	Rascon	516	I
02038	Flying Y	3,975	M
02039	Joe B. Nunn	96	I
** 02040	Goat Mountain	1,613	I
02041	Seventy-Six Draw	552	I
02042	Bisbee Hills	372	I
02043	Phillips Ranch	1,702	I
02044	Playas Peak	3,008	I
02045	J. E. and Billie Smith	1,920	I
* 02046	Smyer Ranch	2,362	I
02047	Fred MacKenzie	84	C
02048	Sam Teague	120	C
02049	Seventeen Well	204	I
02050	Nadine E. Moore	264	M
02051	Steeple A	2,628	M
02052	Willow Draw	1,192	I
02053	Pol West	1,032	I
02054	Southwell Ranch	2,518	I
02055	Suckerville	492	I
02501	Akela West Lease	108	M
02502	Benedict Lease	144	M

APPENDIX D-2 (Continued)

ALLOTMENT STATUS AND CATEGORY

Allotment Number	Allotment Name	Total Preference	Management Category
02503	Red Mountain Ranch	240	M
02504	Cerro Mesa Ranch	1,056	M
02505	Black Mountain Ranch	420	M
02506	Hatcher East Lease	12	M
02508	Hurt Lease	708	M
02509	Hatcher John Lease	60	M
02510	Guaderrama Lease	24	M
02511	Hervol Lease	12	M
02512	Irwin Lease	24	M
02513	Sweetwater Pasture	84	M
02514	Jones Lease	24	M
02515	Kretek Corp. Lease	24	M
02516	Mauer Lease	96	M
02517	McCauley J.L. Lease	288	C
02518	Nunn Joe Bill Lease	144	M
02519	Simpson Lease	528	M
02520	Seventy-Six Draw Lease	528	M
02521	Bassett Lease	12	M
02522	Salopek Lease	48	M
02523	Smyer Frank Lease	60	M
02524	Speir Lease	612	M
02525	Cerro Mesa Lease	120	M
02526	Chino Lease	336	M
02527	Black Mountain West	300	M
02528	Butterfield	180	M
02529	POL Lease	12	M
02530	Butterfield Trail	324	M
02531	Baker Lease	84	M
02532	Cienega Lease	432	M
02533	T Bar Ranch Lease	24	M
02534	Foster Lease	12	M
02535	Burdick Hills West	24	M
02536	Koenig Lease	36	M
02537	Phillips Lease	136	M
02538	Border Ranch Lease	156	M
02539	May Lease	252	M
02540	Flat Ranch Lease	36	M
02541	Acosta Lease	24	M
02542	Southwell Lease	132	M
03001	Aden Hills	1,311	C
03002	Home Ranch	1,501	C
03003	Black Mesa	1,584	C
03004	Radium Springs	96	M
03005	High Lonesome	1,543	I
03006	Foster Canyon	12	M
03007	Charles Brewster	192	M

APPENDIX D-2 (Continued)

ALLOTMENT STATUS AND CATEGORY

Allotment Number	Allotment Name	Total Preference	Management Category
03008	Picacho Peak	985	I
03009	Lazy E Ranch	3,891	I
03010	Juan Bustamante	252	M
03011	Loco	372	C
03012	Sierra Alta Ranch	1,386	M
* 03013	Corralitos Ranch	13,860	I
03014	W. F. Hayner	252	M
* 03015	Alamo Basin	4,436	I
03016	Pol East	5,688	I
03018	Spring Canyon	456	M
03019	Cambray	382	M
03020	Beacon	4,104	C
03022	La Union	2,528	C
03023	Kilbourne Hole	5,741	I
* 03024	Goodsight Hills	5,981	I
03025	Broad Canyon	360	M
* 03026	Horse Canyon	288	I
03027	Bignell Arroyo	444	I
03028	Hyatt and Hyatt	10,428	I
03029	West Potrillo	8,436	I
03031	Las Uvas Ranch	3,089	M
* 03032	Saddle Mountain	2,640	I
03033	Mt. Riley	5,412	I
03034	Vaughn Ranch	121	M
03035	Nutt Ranch	36	M
03036	Vaughn Ranch	1,080	I
03038	La Mesa	2,844	C
* 03039	Border Ranch	5,508	I
03040	Altamira Ranch	636	I
03041	Akela	192	C
03042	Frank J. Konyyn	12	M
03043	Bill R. Ward	300	M
03044	Western Oil Company	408	C
03045	Chamberino	185	C
03047	Indian Springs	1,700	M
03048	Little Black Mountain	312	C
03056	Afton	1,284	I
* 03058	Palma Park	2,340	I
**03059	Beck Land & Cattle Co.	516	M
03060	China Draw	216	M
03061	Garfield	444	C
03063	Reserve	1,308	I
* 03064	Placita Arroyo	504	I
03065	Hille	3,168	I
03066	Rancho Paradiso	192	C
03067	Rincon	960	C

APPENDIX D-2 (Continued)

ALLOTMENT STATUS AND CATEGORY

Allotment Number	Allotment Name	Total Preference	Management Category
03068	South Well	2,688	I
** 03097	Beck Lease	408	M
03098	China Draw	384	M
04501	Keith Lease	204	M
04502	McCauley F.L. Lease	984	M
04503	Pine Canyon Lease	1,140	M
04504	Onda Lease	504	M
04505	Hatcher West Lease	48	M
04506	Hollimon Lease	1,332	M
04507	Brown Lease	12	M
04508	Faywood Lease	12	M
04509	96 Creek Lease	48	M
04510	Crumbley Lease	12	M
04511	De La O Lease	60	M
04512	Delancey Lease	60	M
04513	Upton Mountain Lease	348	M
04514	Delk Lease	888	M
04515	Upton Lease	60	M
04516	Dickerson Lease	1,020	M
04517	2C Ranch Lease	1,068	M
04518	McDonald Lease	168	M
04519	Whiskey Creek	120	M
04520	Foster Lease	60	M
04521	Foy Partnership Lease	132	M
04522	Franks Ranch Lease	1,500	M
04523	White Rock Canyon	708	M
04524	Glenn Lease	48	M
04525	Gunter G. Lease	1,620	M
04526	Harrington Ranch	120	M
04527	Hinton Lease	180	M
04528	Hooker Joe Lease	780	I
04529	Pitchfork Ranch	1,104	M
04530	Casas Grandes Lease	499	M
04531	Solvesky Lease	24	M
04532	McCauley Harry Lease	48	M
04533	McCauley Marie Lease	720	M
04534	McCauley J.A. Lease	36	M
04535	Ogilvie Ranch Lease	120	M
04536	Niblett Lease	72	M
04537	Greenwood Ranch	1,008	M
04538	Three Sisters Lease	12	M
04539	Rice and Son Lease	156	M
04540	Richardson Lease	12	M
04541	Spires Cattle Lease	648	M
04542	Strain Lease	12	M
04543	Pugmire Lease	132	M

APPENDIX D-2 (Concluded)

ALLOTMENT STATUS AND CATEGORY

Allotment Number	Allotment Name	Total Preference	Management Category
04544	Boston Hill Lease	12	M
04545	Brockman Lease	24	M
04546	Wesley Brown Lease	156	M
04547	Eby Ranch Lease	1,224	M
04548	Norris Lease	528	M
04549	Moore Nadine Lease	960	M
04550	Hooker Lease	12	M
04551	Johnson Clint Lease	12	M
04552	Moon Ranch	24	M
04553	Gunter Lease	12	M
04554	Capulin Cattle Lease	432	M
04555	Jarrell Ranch Lease	1,136	M
04556	Shefke Ranch Lease	24	M
04557	Fierro Lease	24	M
04558	Stone Corral Spring	24	M
04559	Tioga-Marion	12	M
04561	Rafter S	372	M
04598	7XV Ranch Lease	60	M
05013	Baylor Canyon	1,716	I
15001	Chaparral	1,024	I
15002	Dripping Springs	1,759	I
15003	San Augustine Spring	624	I
15004	Anthony Gap	492	I
15006	Rosewell	275	I
15007	Dona Ana Mountains	1,905	M
15008	Hawkeye Canyon	396	C
15009	Bishop's Cap	1,593	I
15010	Tex-Line	180	C
15012	Organ	168	M

Source: BLM Files, 1993.

Notes: * Indicates allotments with an Allotment Management Plan.

** Indicates allotments with an Holistic Resource Management Plan.

APPENDIX D-3

GRAZING MANAGEMENT CONSIDERATIONS FOR THE MIMBRES RESOURCE AREA

PRECIPITATION INFLUENCE AND IMPORTANCE

In the Mimbres Resource Area, precipitation during the growing season is the single most important variable in a plant's growth process. In short, effective soil moisture is the supreme limiting factor for plant growth and development. The variability of precipitation, its amount and timing from year-to-year, is a major factor responsible for many grazing management problems. Plant response is almost totally determined upon the timing of the precipitation and subsequent soil moisture.

The major perennial grass species in the Resource Area are warm season plants. About 90 percent of their growth is during the summer growing season of July through September and about 10 percent during late fall and early spring. Occasionally, growth may begin in May or June depending on the advent of rain; but normally this period is dry and the perennial grass species are dormant. On the other hand, plant growth may be retarded or delayed until mid or late August, again depending on rainfall. Ordinarily, growth continues into October before it is stopped by frost. Visible growth often temporarily ceases during the usual 3-month growing season unless rainfall is adequate and well-timed (Paulsen and Ares 1962). Jameson (1965) reports also that the warm-season grasses experience little, if any, growth from late spring through mid-July; and that there is little difference in the effect on these plants whether grazing begins in the period of semi-dormancy or late in the period.

Paulsen and Ares (1962) reported that black grama growth is completed within a relatively short time in the summer, often within 30 days. Flower stalks ordinarily head out and mature within 5 to 7 weeks after growth starts. Hence, in most years, flowering begins early in August, the caryopses are set by late September, and seed dissemination begins in October (Nelson 1934).

Drought is a serious consideration for management on the semi-desert grass-shrub rangelands. Herbel and

Gould (1973) emphasized that drought periods are frequent and expected, and that the arid rangelands are very fragile. During 53 years of record on the Jornada Experimental Range, 45 percent or 24 years were classified as drought years. Stands of perennial grasses are often severely reduced by drought. Herbel and Gould further report that any overuse of the key perennial grasses followed by a prolonged drought can result in high mortality.

Results of several studies and reviews of various range literature reports show that the impacts of weather on short-term vegetational changes is often greater than the influence of management (Martin 1973).

Norton (1981) reported that: "In a realistic rangeland situation in the western U.S., the influence of grazing on vegetation production is insignificant in comparison with the effect of climate on production

Paulsen and Ares (1962) reported that the basal area of perennial grasses in the fall correlated best with precipitation for the 15-month period ending September 30 of the year of measurement. Cable and Martin (1975) found in southern Arizona that herbage production in a given summer is related not only to current summer rainfall but to rainfall during the previous growing period. The fact that rainfall in two successive summers is involved in the current summer's perennial grass production means that low rainfall in one summer not only reduces production during the current summer, but it reduces the prospects for the next summer as well. They (Cable and Martin 1975) found the reason for this is that the culms that produce herbage during the current summer originated as basal buds that broke dormancy either during the preceding spring, or more commonly, the preceding fall. Consequently, a dry summer and a dry spring preceding a high-rainfall summer will result in relatively low herbage production because the number of herbage-producing culms is low (Martin 1975). Thus, it takes 2 years to produce a grass crop, and it takes at least 2 years to recover from a 1-year drought. Hence, management decisions should be made with these thoughts in mind.

UTILIZATION

The key indicator of proper stocking is the intensity of use. Martin (1975) notes that on semi-desert grass-shrubs rangelands, the number of cattle grazed should be sufficient to utilize about 40 percent of the perennial grass herbage produced in an average year. This level of grazing will maintain good grass composition over the rangeland. Herbel et al. (1974) points out that grazing limited to no more than 40 percent utilization of the weight of the current year's forage will provide for maintenance or improvement of the desired vegetation. Valentine (1970) suggested grazing less than 40 percent as a desirable management for improving deteriorated black grama rangeland. Paulsen and Ares (1962) found that black grama cannot maintain itself and remain in good productive condition under the impact of repeated droughts by grazing 50-55 percent. They recommended that black grama rangeland be grazed at no more than 30-35 percent use level, and that 50 percent use be applied only to good-condition rangeland.

Clipping studies (Miller 1976 and Gadzia 1979 as reflected by Donart 1980) indicated that just prior to or during seed production is a common phenological stage of growth when a single, severe removal of herbage is detrimental to plant vigor. Grazing or defoliating black grama during or after flowering was most detrimental to the plant. On the other hand, defoliation during the early vegetative growth stage (3 to 4 leaf stage) was not harmful if use was restricted to 65 percent or less (65 percent during this time only results in a 16-30 percent use of total annual production). Jameson (1965) also reported that warm-season perennial grasses should be protected from grazing during the summer growing season if they are to be favored.

Ogden (1980) summarized that the phenological stage of plant growth in combination with an opportunity for regrowth following herbage removal are major considerations in providing for the welfare of the

individual plant. Trlica and Cook (1971) found that clipping Utah desert shrubs and grasses late in the growing season so that limited regrowth occurred after defoliation resulted in low carbohydrate reserved in the fall. Menke (1973) found four-wing saltbush was most sensitive to damage by severe defoliation in late summer or early fall at or near seed maturing. Hence, if close herbage removal occurs during the early reproductive stage of growth when opportunity for regrowth is limited, reduced plant vigor is the normal consequence.

FLEXIBILITY OF HERD NUMBERS

Paulsen and Ares (1962), Herbel and Nelson (1969), and Herbel et al. (1974) emphasized that flexibility in livestock numbers is recommended to adjust to the inevitable fluctuating forage crop. Forage production is so variable in the semi-desert region that the year-to-year production may vary from a few pounds to several hundred pounds. In fact, Herbel et al. (1969) noted that a fluctuating forage crop is a fact-of-life in this area. He further states that a rangeland unit stocked at a constant level, based on average years, is to invite destruction of the rangeland resource. Herbel and Nelson (1973) recommend a flexible stocking plan whereas the base herd would be comprised of not more than 55 to 60 percent breeding animals, and the remainder of the herd would be yearlings and replacement heifers. For despite the application of the best known techniques of rangeland management, periods of low forage production often occur when stocking must be reduced (Paulsen and Ares 1962). Norton (1981) also recognizes that while stocking rates remain static, grazing pressure increases in years of low forage production. Of course under these conditions, forage utilization would approach maximum use, which would likely depress subsequent production. Conservative stocking levels set for years of average production would naturally reduce grazing pressure during years of low forage production.

UTILIZATION CRITERIA FOR IMPORTANT FORAGE SPECIES²

PLANT PHENOLOGY Growth Stages	LATE DORMANCY January thru Sustained Green up	VEGETATIVE Early (3-4 leaf) (Late 5-6 leaf)	FLOWERING Early Boot Late Boot Seed Shatter	EARLY DORMANCY November-Janua
<p><u>Grasses</u></p> <p>Black grama <i>Bouteloua eriopoda</i> Warm-season</p>	<p>Graze to desirable residue or use level-generally not more than 50-55% on good condition rangeland (leave 3" stubble height). Graze only 30-35% of total annual forage production on deteriorated rangeland (leave a 4" stubble height).</p>	<p>Grazing during 3-4 leaf stage is not detrimental to plant as later in the growing season. By grazing only up through this stage allows the plant ample regrowth time to complete its physiological needs. Early use of the species has less impact on plant vigor than late season or continuous defoliation.</p> <p>Rest whenever possible</p> <p>Defoliation at 65% use during this period removes only 30% of total plant production for year. However, this degree of use significantly reduces the number of stolons produced during the previous growing season, but does not remove following year's stolon production.</p> <p>Black grama is not highly preferred by cattle during the summer growing season when other more palatable species are available. On ranges below 5,000 feet, black grama may not comprise 10% of the diet during the summer except under drought conditions or unfavorable rangeland conditions.</p>	<p>Rest——resting throughout the growing season, especially during and after flowering, is critically important to the improvement of black grama. Defoliation during this period of growth is most detrimental to plant vigor and vegetative reproduction potential. Plants clipped during or after flowering or continuously through the growing season produced less herbage the following year than plants defoliated during the vegetative growth stage.</p> <p>Herbage production is highly variable from year to year. Current year's herbage is dependent on effective precipitation from July-September and also on the previous growing seasons rainfall and production.</p> <p>When the species is properly managed, associated plants will grow well. Thus grazing no more than 40% of current year's herbage production by weight; deferring from grazing during the growing season; and given consideration to drought stress and the fact that it takes at least 2 years to recover from a 1-year drought are management strategies that will contribute to improving the stand.</p> <p>Ninety percent of its growth is produced during the rainy season (July-August-September). Reproduction is almost entirely by stolons and tillering. Minimal viable seed is produced, and unfavorable climatic conditions inhibit germination.</p> <p>Canfield (1939) noted that the period of growth varied from 64 to 176 days, but approximated 98 days in most years.</p> <p>Physiologically, most height growth is completed within a relatively short time in the summer, often within 30 days. Flower stalks ordinarily head out and mature within 5 to 7 weeks after growth starts. In most years, flowering begins early in August, the caryopses are set by late September, and seed dissemination begins in October.</p>	<p>Grazing 30% of total annual production at this time is a highly desirable management practice for improving deteriorated black grama rangeland (leave about 4" stubble height). Use during this period and on through late dormancy allows utilization of the plant when it is least susceptible to grazing injury.</p> <p>The plant is highly nutritious at all seasons of the year; growth activity of plant in winter increases its palatability. Black grama may comprise as high as 62% of cattle diet during this time.</p>

APPENDIX D-5 (CONTINUED)
 UTILIZATION CRITERIA FOR IMPORTANT FORAGE SPECIES^{a/}

<p>oats grama <i>outeloua curtipendula</i> /arm-season</p>	<p>Graze or utilization up to 50% of total annual production of plant.</p>	<p>Rest----- Resting during the growing season (July, August, September) is critical for replenishing root reserves and providing for new root growth.</p> <p>The plant is highly palatable and nutritious. Greens up somewhat earlier in the spring than other gramas.</p>	<p>Rest----- Resting during the growing season (July, August, September) is critical for replenishing root reserves and providing for new root growth.</p> <p>The plant is highly palatable and nutritious. Greens up somewhat earlier in the spring than other gramas.</p>	<p>Use from early through late dormancy is a preferred management strategy if improvement of the species is desired.</p>
<p>blue grama <i>outeloua gracilis</i> /arm-season</p>	<p>Graze or utilization up to 50% of total annual forage production of plant.</p>	<p>Rest----- Rest during the growing season, mainly July and August, depending on effective soil moisture or precipitation timing.</p> <p>Highly palatable to all livestock. It is a fast summer-growing species and matures in about 60-70 days after summer rains start. Produces abundant forage under favorable conditions.</p>	<p>Rest----- Rest during the growing season, mainly July and August, depending on effective soil moisture or precipitation timing.</p> <p>Highly palatable to all livestock. It is a fast summer-growing species and matures in about 60-70 days after summer rains start. Produces abundant forage under favorable conditions.</p>	<p>Graze through late dormancy.</p>
<p>lespedeza dropseed <i>porobolus flexuosus</i> /arm-season</p>	<p>Graze--Moderate use of 40-50% is desirable.</p>	<p>Grazing 60% up to or during this time, which will remove about 20% of the total annual forage production, allows recovery of plants before growing season ends. Grazing is less detrimental to the plant at this time than later in the growing season. Can withstand heavier use prior to flowering than during the remainder of the growing season.</p>	<p>Rest----- Defoliation during flowering or continuously throughout the growing season significantly reduces production the following growing season. However, the species is very opportunistic related to effective soil moisture thereby responding rapidly to favorable conditions. (Likely if adequate growth and moisture conditions are present, it probably cannot seriously hurt the plant.) Therefore, the plant should be used when favorable climatic and growth conditions are present. It is a prolific seed producer. Best used for beef production during the growing season as plant becomes unpalatable and low in nutrients at maturity.</p>	<p>Graze--Moderate use of 40-50% is desirable.</p>
<p>brush muhly <i>trihlenbergia porteri</i> /arm-season</p>	<p>Graze at moderate rate of 40-50% available forage.</p>	<p>Rest----- or if grazed during this growth period, defoliation prior to flowering is superior to continuous or late defoliation for maintaining plant vigor. Graze no more than 35% of total annual production at this time.</p> <p>Grazing during the growing season is more likely beneficial for beef production, as the plant decreases in palatability and nutrition when it matures.</p>	<p>Rest----- or if grazed during this growth period, defoliation prior to flowering is superior to continuous or late defoliation for maintaining plant vigor. Graze no more than 35% of total annual production at this time.</p> <p>Grazing during the growing season is more likely beneficial for beef production, as the plant decreases in palatability and nutrition when it matures.</p>	<p>Graze at 35-40% is allowable.</p>

APPENDIX D-3 (CONTINUED)
UTILIZATION CRITERIA FOR IMPORTANT FORAGE SPECIES^{a/}

Tobosa <i>Hilaria mutica</i> Warm-season	Rest or graze lightly, as mature plants are rank, coarse, and unpalatable. Grazing to 50-55% during dormancy not harmful to species, over-utilization would occur on other favored management species.	Graze----- The species is best used during the summer growing season while the plant is most palatable. (Period of active growth is similar to black grama.) Utilization of 40-55% is desirable to maintain a vigorous stand. Tobosa pastures can be used to round out required rest on other favored management species.	Graze----- The species is best used during the summer growing season while the plant is most palatable. (Period of active growth is similar to black grama.) Utilization of 40-55% is desirable to maintain a vigorous stand. Tobosa pastures can be used to round out required rest on other favored management species.	Rest or graze, but mature plants are rank, coarse, and unpalatable, so best use will be made when grazed during periods of active growth.
Alkali sacaton <i>Sporobolus airoides</i> Warm-season	Graze or rest.	Graze----- Best used during summer growing season when palatability and nutrition of plant is at highest level. However, if improvement of stand is desired, periodic summer growing season rest is required.	Graze----- Best used during summer growing season when palatability and nutrition of plant is at highest level. However, if improvement of stand is desired, periodic summer growing season rest is required.	Plant can withstand 60-65% use during dormancy. The species matures coarse and rank, but cattle are found to do well anyway.
<u>Shrubs</u> Fourwing saltbush <i>Atriplex canescens</i> Cool-season	Graze-species best used during dormant period.	Rest or very light use ^{b/}	Most sensitive to defoliation in late summer or early fall at or near seed maturity. Grazing should be held to about 40% use of total annual forage production.	The species is best grazed during the dormancy periods. Palatability and nutrition remain high during nongrowth period.
Winterfat <i>Ceratoides lanata</i> Cool-season	Graze--species best used during dormancy.	Rest or very light use ^{b/}	Graze no more than 35% of total annual forage production to maintain vigor and production. Cannot tolerate overuse during the growth period, especially during flowering. Most desirable management is to rest in the late growing season if moisture is available.	Grazing during dormancy is preferred management when possible. Can be grazed heavier during dormancy.
Mountain mahogany <i>Cercocarpus montanus</i> Cool-season	Graze	Rest or light use ^{b/}	Rest or light use	Can withstand heavy use during dormancy, however, should not consistently be grazed at heavy intensity.
Desert ceanothus <i>Ceanothus greggii</i> Cool-season	Graze	Rest or light use ^{b/}	Rest or light use	Graze--utilization should be no more than 40%.

Sources: Donart, 1980; Martin, 1975; Herbel, Steger, and Gould, 1974; Valentine, 1970; Paulsen and Ares, 1962; Miller and Donart, 1979; Cable and Martin, 1975; and Miller, 1976.

Notes: a/ To be used as a guide only in establishing rangeland grazing practices--is not a grazing system. Desert rangeland plants respond, physiologically, more to precipitation time and subsequent effective soil moisture than to any calendar month or date. Therefore, management of any forage species must be flexible enough to allow for such variation of year to year precipitation patterns. Thus grazing systems or treatments following a set calendar schedule in the Planning Area will meet with little or no success.

b/ Vegetation leaf stages (3-4 and 5-6) not applicable.

APPENDIX E

DESIRED PLANT COMMUNITY



The desired plant community concept used in the Las Cruces District, Mimbres Resource Area is defined as a plant community that produces the kind, proportion, and amount of vegetation necessary for meeting or exceeding the land use plan goals and activity plan objectives established for the site. The desired plant community becomes the vegetation management objective for the site. The desired plant community must be consistent with the site's capability to produce the identified community through land treatments such as fire and chemical brush control and grazing management.

Through the soils mapping done on all Federal land within the Resource Area during the 1977 to 1981 range surveys, there were 26 range sites identified using the Soil Conservation Service range site guidelines. These 26 range sites were then grouped into like sites using the vegetation potential described for the range site, soil types and occurrence within the Resource Area. An interdisciplinary team, using the above information decided on the optimal mix of perennial grasses, forbs and shrubs for each of the 12 groupings of range sites. A range of desired plant mixtures (desired vegetation) were developed and applied to the three categories of vegetation growth

forms (grass, forb, shrub) consistent with the overall goals that were developed during the planning process. Species composition for desired plant communities would be developed during the activity planning stage taking into account all the needs and uses of that particular site.

Using Geographic Information System (GIS) capabilities, a printout of all 26 range sites with the existing 46 possible aspect vegetation subtypes was produced. The range site/vegetation combinations were refined into 16 possible combinations. Brush species response to chemical control played a major role in the shrub species groupings. These chemical treatment areas were delineated using soils types, percent slope and distance from perennial streams as parameters. Each of the 16 types were given a desired vegetation prescription for that site. Several types, such as riparian, arroyo areas, and pinyon-juniper/oak woodland/conifer remain the same through all Alternatives. The existing baseline data on the vegetation types and range sites are on file in the Mimbres Resource Area, Las Cruces District as are the GIS maps which were developed for each Alternative showing the possible differences in desired plant community by Alternative.

APPENDIX F

CULTURAL RESOURCES



HISTORY AND INVENTORY

The objective of the cultural resource program is to manage cultural resources on public land in a manner that protects and provides for their proper use. Cultural resources include archaeological, historic, and socio-cultural properties. Archaeological evidence indicates that portions of the Mimbres Resource Area have been occupied continuously for the past 10,000 years.

A total of 3,100 archaeological sites are recorded from Luna, Dona Ana, Grant, and Hidalgo counties. Only approximately 2 percent of public land has been subjected to Class III cultural inventories.

PALEOINDIAN (10,000-5,000 B.C.)

The Paleoindian period is generally divided into three cultural traditions: Clovis, Folsom, and Plano, with Clovis the earliest. Paleoindian occupations within the Mimbres Resource Area are known primarily from numerous reports of isolated Paleoindian projectile point surface finds. The Paleoindian period is traditionally characterized as an adaptation to the hunting of large animals or "big game hunting." Paleoindian period sites are rare within the Resource Area. The Mockingbird Gap site, which was excavated in 1968, is a Clovis period site located approximately 30 miles southeast of Socorro, New Mexico and is outside of the Mimbres Resource Area. Paleoindian material remains outside the Mimbres Resource Area have been associated with numerous faunal remains including horse, tapir, camel, cervids, canids, antelope, jackrabbit, bison, and mammoth. Most Folsom and Plano period artifacts are reported from coppice dune deflated areas within the Mimbres Resource Area (LeBlanc and Whalen 1980). One Paleoindian projectile point, a Midland point, was recently recovered from New Mexico State University (NMSU) archaeological field school excavations at Cooke's Spring near Fort Cummings within the Mimbres Resource Area. The Cloverdale Creek site in Hidalgo County is believed to contain a Folsom component. It has been suggested that Folsom period sites will occur most

commonly in association with playas within the Mimbres Resource Area. Additional research into Paleoindian period settlement patterns, subsistence strategies, and social organization within the Mimbres Resource Area is needed.

ARCHAIC (5,000 B. C. - A.D. 0.)

Climatic change in the form of decreasing moisture is generally believed to have been responsible for the change from the Paleoindian to an Archaic adaptation. Much of what is known about the Archaic period in the region is from the analysis of perishable artifactual material from Tularosa and Cordova Caves in the Gila National Forest and from Bat Cave in the Socorro Resource Area. In addition, numerous excavations have been conducted at Archaic period open sites within the Mimbres Resource Area. Traditionally, the Archaic period has been characterized as small extended family groups or bands utilizing hunting and gathering subsistence strategies based on small game and intensive seasonal gathering of a wide variety of plant resources. Recovered Archaic remains include basketry, cordage, sandals, and a wide variety of artifacts manufactured from fur, feather, hide, wood, stone, and bone. Archaic groups are believed to have been highly mobile and essentially nonagricultural. Archaic remains are often represented by lithic concentrations, occasional ground stone artifacts, and small hearth features (LeBlanc and Whalen 1980). Thousands of Archaic period campsites and specialized activity areas are believed to occur within the Mimbres Resource Area.

DEVELOPMENTAL PUEBLO AND PUEBLO (A.D. 0-1540)

Mogollon-Mimbres Sequence

The Mogollon sequence contains three relatively distinct subdivisions, the Early Pithouse, Late Pithouse, and Classic period. Archaeological sites which are representative of all three of these time periods occur in relatively large numbers within the Mimbres Resource Area.

The Early Pithouse period is characterized by the beginnings of sedentary, horticulture based villages. The pithouse structures are round and the associated pottery is generally plainware. Extremely large "ceremonial" structures also occur during this period. Village size varies widely from 1 to 80 pithouse structures. Villages in this period are usually located on knolls, ridges, or mesa tops which are relatively inaccessible.

The Late Pithouse period is marked by a change in pithouse shape from round to rectangular. Villages are horticulture-based and situated on river terraces, low ridges, and relatively accessible areas. Population increases are indicated by increased village size.

In the Classic Mimbres or Surface Pueblo period, population size again increases. Structures are constructed above ground. Irrigation agriculture was probably employed. Decorated and painted pottery is common during this period. This period ends suddenly at approximately A.D. 1150 (LeBlanc and Whalen 1980).

Animas/Black Mountain Phase

In the archaeological record, the post-Mimbres period reflects changes in settlement pattern, trade relations, and social organization. The post-Mimbres period is characterized as a large population living in large sites leaving large areas uninhabited. Village sites consist of room blocks constructed around central plazas. Room size increases from the previous Mimbres period. The construction technique is puddled adobe with occasional small cobbles. Floors and walls are plastered adobe. Some of the Animas/Black Mountain Phase cultural traits are similar to those found in the Casa Grandes region of Mexico but the exact nature of the relationship is unclear (LeBlanc and Whalen 1980).

Salado Period

Animas and Salado period sites are characterized by similar construction techniques, but with the Salado sites having generally larger room blocks. In many of the Salado sites which have been tested, the villages appear to have been rapidly abandoned. Dates from Salado sites range from AD 1375 to 1450. Irrigation agriculture may have been practiced in the Salado period (LeBlanc and Whalen 1980).

The post-Mimbres periods are not well defined in the Mimbres Resource Area, and further research is needed.

Jornada Mogollon

The extreme eastern edge of the Mimbres Resource Area, east of the Rio Grande is within the range of the Jornada Branch of the Mogollon. The Jornada Mogollon is also divided into the Pithouse and Pueblo periods. In the Jornada and Mimbres areas, population size increased from the early to the late Pithouse period. Very large ceremonial or communal structures are rare in the Jornada area. In both areas, the Pueblo cultures arise from in the pithouse cultures. Pueblos replaced pithouses in the Mimbres area by AD 1000 but not until AD 1200 in the Jornada area. In general, Pueblo development began sooner and reached greater heights in the Mimbres region than in the Jornada. In the Jornada area, Pueblo societies continued without significant change until their abandonment around AD 1400 (LeBlanc and Whalen 1980).

Developmental Pueblo and Pueblo Jornada Mogollon

Student archaeologists from NMSU, under the direction of Dr. Steadman Upham, excavated several small rock shelters in the Organ Mountains from 1982 through 1985. The field excavations demonstrated an occupation of the shelters beginning approximately A.D. 250 and lasting for 1,000 years. These sites would be representative of the Jornada Mogollon culture period.

THE HISTORIC PERIOD (A.D. 1540 TO PRESENT)

The first European conquest of New Mexico was initiated by Francisco Vasquez de Coronado in 1540-1542. Coronado arrived in New Mexico with 230 Spanish soldiers, 800 Indians, and 3 women. In the Rio Grande Valley, Coronado found pueblos and Indians who were weavers, potters, and farmers (Athearn 1989). These historic period pueblo groups are generally believed to have been associated with Mansos, Suma Jocome, and Jano culture groups. In 1581, the Rodriguez-Chamuscado expedition entered New Mexico and observed what are believed to be various Apachean groups.

In 1598, Juan de Onate lead a large expedition along the Rio Grande and across the dreaded and almost

waterless 70-mile long stretch of the Camino Real known as the Jornada del Muerto. A system of Spanish caravans maintained a route which passed through the Mimbres Resource Area between Chihuahua City and Santa Fe. In 1610, a Spanish capital was established in Santa Fe. In 1680, the northern pueblos led a successful revolt and the Spanish were forced to retreat down the Camino Real to El Paso del Norte. In 1692, Diego de Vargas Zapata initiated a successful reconquest of New Mexico. An El Paso del Norte census in that same year (1692) documented a population of 382 contained in 50 households. France, Spain, and Mexico administered New Mexico as a province until the war with the United States in 1846.

The Spanish administered New Mexico as a colony until the war with the United States in 1846. After the signing of the treaty of Guadalupe Hidalgo in 1848, numerous permanent settlers located in Mesilla. Fort Filmore was established near Mesilla in 1851 and Fort Cummings near Deming in 1863 to protect the region from Apache depredations. A boundary dispute was settled with Mexico by the Gadsden Purchase of 1854 which made much of what is now the Mimbres Resource Area a part of the United States. The Butterfield Overland Mail and Stage Line was established in 1858 and allowed passengers to ride from St. Louis, Missouri to San Diego, California. The entire route from El Paso to Arizona lies within the Mimbres Resource Area. In 1861, Confederate Colonel John R. Baylor captured Fort Filmore for the Confederacy. In 1862, the confederates fled the area when 1,400 troops of the California Column, Union Army, began arriving in New Mexico. Emigrants heading west to California followed the Southern Emigrant Trail through the Mimbres Resource Area until 1881 when the railroad was completed across the Mimbres Resource Area. The coming of the railroad opened up the Mimbres Resource Area to additional settlement and fairly large scale mining development.

CULTURAL RESOURCE MANAGEMENT GOAL SYSTEM

The major cultural resources program input into the Resource Management Plan (RMP) process is to form management objectives for specific cultural resource special management areas (SMAs). These management goals are general in nature and normally do not call for specific on-the-ground actions. The three goal categories that have been incorporated into this planning effort include (1) Management for

Public Values, (2) Management for Conservation, and (3) Management for Research Potential.

1. MANAGEMENT FOR PUBLIC VALUES

The goal of this category is the management of sites, locations, features, and objects identified as having attributes which contribute to maintaining the heritage, belief systems, folkways, and existence of a social or cultural group. Considerations for management in this category also include access to and maintenance of locations, sites, features, and objects of traditional religious or spiritual value; use and possession of sacred objects; and the freedom to worship through ceremonies and other traditional rites.

2. MANAGEMENT FOR CONSERVATION

The goal of this category is the management of areas, sites, locations, districts, or features by removing them from consideration for scientific or historic study which would result in their physical alteration.

Properties managed under this goal could also possess one or more of these attributes: uniqueness or relative scarcity of type, class, condition, affiliation; research potential that surpasses current state of the art; or singular historic importance or architectural interest. Such cultural resource properties would remain in this category until specified provisions are met in the future.

3. MANAGEMENT FOR INFORMATION POTENTIAL

The goal of this category is the management of cultural properties so that they would remain suitable for consideration as the subject of scientific or historical study utilizing research techniques currently available. Such study could, if warranted by an approved research design, result in the controlled physical alteration of that property. A cultural property in this category need not necessarily be conserved in consideration of an approved research or data recovery (mitigation) proposal.

Management under this category could allow controlled experimental study which could also result in physical alteration to the property. This work could be performed by the BLM or other entities concerned with the management of cultural properties for purposes of obtaining specific information leading to a better understanding of kinds and rates of natural

or human-caused deterioration, effectiveness of protection measures, and similar lines of inquiry which would ultimately aid in the management of cultural resources.

CULTURAL RESOURCE USE CATEGORY SYSTEM

In addition to the use allocation recommendations made through management goal category assignment during the land-use planning (RMP) stages, another vital step occurs during the next, more specific planning state, the Cultural Resource Management Plan or activity plan. This step or allocation commitment comes after the completion of the RMP which establishes the general management goals for a particular site or combination of sites. The activity plan commits specific actions and generally assigns (as part of the activity planning process) each site to one or more of the following use categories.

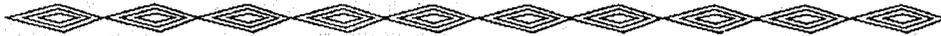
1. "Current scientific use" means that a cultural property is the subject of an ongoing scientific or historical study or project, under permit, at the time of evaluation. Upon completion of that study or project, the cultural property will be assigned to one of the other use categories.
2. "Potential scientific use" means that a cultural property is presently eligible for consideration as the subject of scientific or historical study utilizing research techniques currently available, including study which would result in its physical alteration. It need not be conserved in the face of an appropriate research or data recovery (mitigation) proposal.
3. "Conservation for future use" means that a cultural property is not presently eligible for consideration as the subject of scientific or historical study which would result in its physical alteration.

Reasons may include a scarcity of similar cultural properties, research potential that surpasses the current state of the art, singular historic importance or architectural interest. It is worthy of segregation from other land or resource uses which would threaten the maintenance of its present condition, and that it will remain in this use category until specified provisions are met in the future.

4. "Management use" means that a cultural property is eligible for controlled experimental study which would result in its physical alteration. Such studies could be conducted by the BLM or other entities concerned with the management of cultural properties to obtain specific information which would ultimately aid in the management of cultural properties.
5. "Socio-cultural use" means that a cultural resource is perceived by a specified social or cultural group as having attributes which contribute to maintaining the heritage or existence of that group, and is to be managed in a way that takes those attributes into account, as applicable.
6. "Public use" means that a cultural property is eligible for consideration as an interpretive exhibit-in-place, a subject of supervised participation in scientific or historical study, a subject of unsupervised collecting under permit, or related educational and recreation uses by members of the general public.
7. "Discharged use" means that a cultural property (previously qualified for assignment to any of the first six categories) no longer possesses the qualifying characteristics for that use (or for assignment to an alternative use), that records pertaining to it represent its only remaining importance, and that its location no longer presents a management constraint for competing land uses.

APPENDIX G-1

RECREATION OPPORTUNITY SPECTRUM



The Recreation Opportunity Spectrum (ROS) (BLM Manual 8320) provides a framework for stratifying and defining classes of outdoor recreation opportunities spanning the entire spectrum. The spectrum ranges essentially natural, low-use areas (resource-dependent recreation opportunities) to highly developed, intensive use areas (facility/vehicle-dependent recreation opportunities).

Recreation opportunities are expressed in terms of three principal components: the types of environmental settings available, the variety of activities possible, and the types of experiences that can be achieved through participation.

The primary determinant of ROS Classes is the setting opportunity. It describes the overall outdoor recreation environment where activity occurs, influences the types of recreation activity that can occur, and ultimately determines the resulting types of experience that can be achieved.

Activities are not bound to opportunity classes and most activities can take place in some shape or form throughout the spectrum. However, general activity opportunities can be described per ROS class.

A particular type of experience is related to the environmental setting and activity engaged in and also in individual differences based on a number of extraneous variables (such as background, education, sex, age, place of residence). The opportunity for a particular experience can be described in a general way.

DELINEATION OF ROS CLASSES

After determining the setting, activity, and experience opportunities, areas are assigned to one of six ROS Inventory Classes. Each class is delineated to identify the available outdoor recreation opportunity that exists. The six ROS classes are described in the following section.

PRIMITIVE CLASS

The setting opportunity consists of contiguous areas of about 5,000 acres, lying more than 3 miles from the nearest point of motor vehicle access. These areas are essentially unmodified natural landscapes, where there is little evidence of other people and almost completely free of management controls. Activity opportunities include overnight backpack camping, nature photography, backcountry hunting, canoeing, and snowshoeing. The experience opportunity consists of the chance to achieve a strong sense of solitude and isolation from human civilization, to feel as one with nature, and to encounter a great degree of personal risk and challenge.

SEMI-PRIMITIVE NONMOTORIZED CLASS

The setting opportunity consists of contiguous areas of about 2,500 acres, lying at least ½ mile from the nearest point of motor vehicle access. The areas possess a predominantly natural landscape, where there are some evidences of other people, and where there are very few management controls. Activity opportunities include backpack camping, nature viewing, backcountry hunting, canoeing, and cross-country skiing. The experience opportunity consists of the possibility to avoid the sights and sounds of people, achieve a high degree of interaction with nature and to experience a great deal of personal risk and challenge.

SEMI-PRIMITIVE MOTORIZED CLASS

The setting opportunity consists of contiguous areas of about 2,500 acres, sometimes along unmaintained two-track routes. The areas have a mostly natural landscape where there are some evidences of other people (but numbers and frequency of contact seem to remain low) and where there are few management

controls. Activity opportunities include day hunting, climbing, vehicle trail riding, mountain biking, hiking, and snowmobiling. The experience opportunity consists of the chance to enjoy isolation from human civilization and technology (the lack of contacting other people), achieving a high degree of interaction with the natural environment, and feeling a moderate degree of personal risk and challenge.

ROADED NATURAL CLASS

The setting opportunity consists of areas alongside or near improved and maintained roads, with naturally appearing but human modified landscapes where there are often evidences and moderate numbers of people, and where there are visible management controls and developments. Activity opportunities consist of a mixture of resource and facility/vehicle-dependent recreation and generally include wood gathering, downhill skiing, fishing, off-highway vehicle driving, interpretative uses, motorboating, and vehicle camping. The experience opportunity consists of the chance to perceive a sense of security in the moderate number of visitor encounters and intermittent human developments available and the chance for some personal risk taking and challenges.

RURAL CLASS

The setting opportunity consists of areas alongside or near paved highways, with heavily modified landscapes where there are considerable evidences or numbers of other people, and where management controls and developments are often seen. Activity opportunities consist of mostly facility/vehicle-department recreation and generally include vehicle sightseeing, horseback riding, on road bicycling, golf, swimming, walking, picnicking, and outdoor competitive games. The experience opportunity consists of the chance to enjoy modern visitor conveniences, moderate to high levels of interactions with other people and a feeling of security from personal risk.

URBAN CLASS

The setting opportunity consists of areas near paved highways, where the natural landscape is dominated or replaced by human made developments, where there are great numbers and evidences of other people, and where management controls are numerous and dominant. Activity opportunities are facility/vehicle-dependent and generally include concerts, wave pools, amusement parks, zoo/fair

visits, vehicle racing facilities, spectator sports, and indoor competitive games. The experience opportunity consists of the availability of numerous modern conveniences, being entertained, encountering large numbers of people, interacting with an exotic and manicured environment, and a feeling of being very secure with personal risk subdued.

MANAGEMENT OBJECTIVES FOR ROS CLASSES

PRIMITIVE CLASS OBJECTIVE

The primitive class is managed to be essentially free from evidence of humans, human-induced restrictions, and on-site controls. Motorized vehicle use within the area is not permitted. The area is managed to maintain an extremely high probability of experiencing isolation from the sights and sounds of others (not more than three to six group encounters per day), independence, closeness to nature, self-reliance through the application of backcountry skills, and an environment that offers a high degree of challenge and risk.

Backcountry use levels and management of renewable resources is subject to the protection of backcountry recreational values. Frequency of managerial contact with users is very low.

SEMI-PRIMITIVE NONMOTORIZED CLASS OBJECTIVE

Semi-primitive nonmotorized areas are managed to be largely free from the evidence of humans, human-induced restrictions, and on-site controls. Motorized vehicle use is prohibited (except by permit). Limited facilities for the administration of livestock and visitor use are allowed, but off-site administration is encouraged. Project designs should stress protection of natural values and maintenance of the integrity of a predominantly natural environment. Areas are managed to maintain a good probability of experiencing minimum contact with others, self-reliance through the application of backcountry skills, and an environment that offers a high degree of risk and challenge.

Backcountry use levels and management of renewable resources are dependent on maintaining ecosystems comparable to naturally occurring ecosystems. The consumption of renewable resources is subject to the

protection of backcountry recreational values. Grazing is allowed, subject to restrictions placed on use of motorized vehicles. Facilities associated with grazing are limited to those necessary for maintaining existing numbers, adequate distribution, and seasons of use, consistency with allotment management plans. Mineral development is subject to valid existing rights. Frequency of managerial contact with users is low.

SEMI-PRIMITIVE MOTORIZED CLASS OBJECTIVE

Semi-primitive motorized areas are managed to provide a naturally appearing environment. Evidence of humans, restrictions, and management controls are present but subtle.

Motorized vehicle use is permitted. Concentration of users should be low. On-site interpretative facilities, low standard roads and trails, trailheads, and signing should stress the natural environment in their design and be the minimum necessary to achieve resource objectives.

The consumption of natural resources is allowed. In the review of plans of operations, utility corridors, rights-of-way, and other surface-disturbing projects, effort is taken to reduce their impacts on the natural environment. Frequency of managerial contact with visitors is low to moderate on trails and primitive roads.

ROADED NATURAL CLASS OBJECTIVE

Roaded natural areas are managed to provide a natural-appearing environment with moderate evidences of the sights and sounds of humans.

Motorized use is permitted. Concentration of users is moderate with evidence of other users prevalent. Resource modification and utilization practices are evident, but harmonize with the natural environment. Development of facilities for motorized use is provided for in any proposed construction standards and designs of facilities.

Placement of rights-of-way, utility corridors, management facilities, and other surface-disturbing activities would be favored over placement in semi-primitive nonmotorized or semi-primitive motorized areas when applicable. The consumption of natural resources is allowed except at proposed developed trailheads, developed recreation areas, and where geological, cultural, or natural features are interpreted as major themes. Frequency of managerial contact with visitors is moderate.

RURAL CLASS OBJECTIVE

Rural areas are managed to provide a setting that is substantially modified in foreground and background views with moderate to high evidences of the sights and sounds of civilization. Motorized use is permitted. Concentration of users is sometimes high with the evidences of other users being substantial. Resource modification and utilization practices are sometime dominant in a somewhat manicured environment. Standards for road, highway, and facility development are high for the purposes of user convenience. Frequency of managerial contact with visitors is moderate to high.

URBAN CLASS OBJECTIVE

The Mimbres Resource Area does not manage for urban types of recreation opportunities.

APPENDIX G-2

IMPLEMENTATION OF ORV DESIGNATIONS



OVERVIEW

The purpose of this appendix is to provide general information about Bureau of Land Management (BLM) policy and procedures for off-road vehicle (ORV) designations. BLM Manuals 8341 contain a more complete discussion. ORV designations are administrative, not Congressional, which allow management flexibility in order to be responsive to changes in the environment.

OBJECTIVES

All public land must be designated as "open," "limited," or "closed" to motorized vehicle use to meet public demand or needs, to protect resources and the safety of public land users, and to minimize conflicts among the various public land users and adjacent landowners. Additionally, existing ORV designations are evaluated and revised, if necessary, whenever existing Management Framework Plans (MFPs) are amended or when Resource Management Plans (RMPs) are prepared, revised, or amended.

POLICY

ORV designations are completed as an integral part of the normal BLM planning system unless problems or conflicts preclude adhering to the planning schedules.

ORV designation allocations are not contingent on the BLM land-use planning system.

Notices of ORV designations are published in the Federal Register within 1 year after completion of decisions allocating ORV use.

Designations apply to all motorized vehicles as defined by 43 Code of Federal Regulations (CFR) 8340.0-5(a) regardless of how the vehicles are being used. Only those vehicles excluded from that definition are allowed in closed areas or limited areas where use is prohibited by designation order.

Necessary nonemergency use associated with BLM licenses, leases, permits, or sales may be authorized as an exclusion from that definition [see 43 CFR 8340.0-5(a)(3)] only if feasible alternatives have been exhausted and the use is compatible with established resource management objectives. Reasonable restrictions on the types of vehicles, time of use, routes, or amount of use may be required in the authorization. Request for mineral exploration or development access under the 1872 mining law are allowed but are subject to 43 CFR 3802 and 3809.

"Open" designations are used for intensive ORV use areas where there are no special restrictions or areas where no compelling resource protection needs, user conflicts, or public safety issues exist that warrant limiting cross-country travel.

The "limited" designation is used where vehicular use must be restricted to meet specific resource management objectives. Examples of limitations include: number or types of vehicles, time or season of use, permitted or licensed use only, use limited to existing roads and trails, use limited to designated roads and trails, or other limitations necessary to meet resource management objectives (including certain competitive or intensive use areas which have special limitations).

Areas or trails are designated "closed" if it is necessary to protect resources, promote visitor safety, or reduce user conflicts. Motorized access will be allowed in closed areas by administrative personnel and permittees who have specifically requested an entrance permit consistent with other privileges.

Brochures (with maps) and other public information and educational tools (such as news releases, articles, talks to groups, environmental and resource education, etc.) inform users of opportunities and restrictions; on-site placement of signs is used to supplement these tools. Signs should be restricted to marking specific problem areas and major entry points.

DESIGNATION METHODOLOGY

Needs and concerns for resource protection, promoting public safety, and reducing conflicts associated with motorized vehicle use on public land are identified by BLM personnel and through public involvement efforts. RMP criteria guide policy and manual direction fulfillment. The BLM assembles the appropriate data to justify ORV designations and completes new inventories when existing information is insufficient to resolve problems. The ORV designations are allocated in the formulation of RMP alternatives and decided in the selection of the preferred alternative. After approval of the selected RMP, a designation order is published in the Federal Register and entered in the District Designation Order Register. Implementation plans are then developed to define and document a specific course of action necessary to carry out the ORV allocation decision. Implementation plan recommendations are either implemented or included in activity plans for further planning considerations.

IMPLEMENTATION PLAN GUIDELINES

The implementation plan is an internal BLM document providing guidance to District and Resource Area managers on how to implement RMP decisions. It defines and documents a specific course of action necessary to achieve ORV designation decision.

By definition, the implementation plan is brief and more concise than an activity plan. It identifies only those actions that are essential to implement the ORV designation decisions. If activity plans are developed, the information from implementation plans are incorporated into them. However, the ORV implementation plan remains a separate entity to provide continuity for management programming, budgeting, program support and to respond to public requests. A copy is maintained at the District and Resource Area offices.

The plan should contain the following information:

- a map and narrative clearly showing the area's designation(s), the reasons for the designation (s), and any additional information needed to ensure public knowledge and understanding of the reasons for the designation. Design,

scale, and format of maps are dependent on the detail needed to ensure adequate interpretation.

- the brochures and maps needed to notify the public of the ORV designations.
- the number, type, and location of physical constraints, such as barriers, fences, gates, ditches, etc.
- public notices needed to inform the public about details of designations (such as announcements on radio or television, newsletters, letters to key interest groups, and public meetings).
- an installation schedule for signs and physical constraints.
- methods and schedules for supervising motorized field procedures and arrangements needed to enforce compliance with ORV designation decisions including cooperative agreements, user group assistance, trespass notices, citations, arrests, or other actions.
- maintenance standards for signs and physical constraints.
- estimates of all costs, work months, and personnel needed to meet implementation requirements.

EMERGENCY LIMITATIONS OR CLOSURES

Limitations of use or closure of areas and trails on public lands to motorized vehicle use under the authority of 43 CFR 84341.2 are not ORV designations.

Whenever the authorized officer determines that motorized vehicle use will cause or is causing considerable adverse effects on resources (soil, vegetation, wildlife habitat, cultural, historic, scenic, recreation, or other resources), the area must be immediately closed to the type of use causing the adverse effects (see 43 CFR 8341.2). Emergency limitations or closures are not used if there is sufficient time to complete standard or interim designations. They must remain in force only until one of those designations can be made or until the

adverse effects are eliminated and measures to prevent their recurrence have been implemented (whichever occurs first). The steps in emergency closure are listed in Table G-1.

A record of the problem identification, analysis, closure order, and action taken to inform the public is maintained in the District office and is available for public review. The closure limitation is entered in the District Designation Order Register.

**TABLE G-1
STEPS IN THE EMERGENCY CLOSURE PROCESS**

STEP	ACTION	RESPONSIBILITY
Problem Identification	Identify and briefly document the problem that is causing considerable adverse effect.	As assigned
Analysis	Briefly document the adverse effects.	As assigned
Decision	Complete and publish the emergency order in the <u>Federal Register</u> .	District Manager
Implementation	Post the affected areas and notify the affected persons at the earliest date possible, using the most effective means available.	As assigned

Source: 43 Code of Federal Regulations 8342.3 and BLM Policy 1990.

Note: The above actions could be completed in a very short timeframe, a matter of hours, if necessary.

APPENDIX H



VISUAL RESOURCE MANAGEMENT

DETERMINATION OF VRM CLASS RATINGS

Visual resource classes are categories assigned to public land which serve two purposes: (1) an inventory tool that portrays the relative value of the visual resources and (2) a management tool that portrays management objectives.

Ratings from scenic quality classes, visual sensitivity levels, and distance zones are combined to form visual resource management (VRM) classes. A VRM class identifies the suggested degrees of human modification that should be allowed in a certain landscape from a visual resource standpoint.

Scenic quality classes are rated for landform, water, color, vegetation, intrusions, and uniqueness. These elements are combined, and the area is classified as Class A - unique, outstanding features; Class B - outstanding features common to the physiographic region; or Class C - features common to the physiographic region.

Sensitivity levels are determined on the basis of frequency of travel through an area, use of the area, and public knowledge of the area. These elements are rated and the area is assigned a high, medium, or low sensitivity level.

Distance zones are placed in three categories: foreground/middle ground zone, background zone, and seldom seen zone. The foreground/middle ground zone is closest to the view and requires more attention and consideration in management decisions because of the great detail that can be seen in the landscape. The background and seldom seen zones are viewed in less detail by the observer and most impacts blend with the landscape because of the distance.

CRITERIA FOR VRM CLASSES

After class ratings are completed scenic quality, visual sensitivity, and distance zones areas are assigned to one of four management classes. These classes are designed to maintain visual quality and describe the different degrees of modification to the basic elements of the landscape allowed.

CLASS I: Those areas where a management decision has been made previously to maintain a natural landscape (e.g., wilderness areas, wild sections of National Wild and Scenic Rivers, and other congressionally or administratively designated areas).

CLASS II: Landscapes with Class A scenic quality, or Class B scenic quality in the foreground/middle ground zone with high visual sensitivity. Changes in any of the basic elements (form, line, color, texture) caused by a management activity should not be evident in the characteristic landscape.

CLASS III: Landscapes with Class B scenic quality and high visual sensitivity in the background zone, or with Class B scenic quality and medium visual sensitivity in the foreground/middle ground zone or with Class C scenery of high visual sensitivity in the foreground/middle ground zone. Changes in basic elements (form, line, color, texture) caused by management activity may be evident in the characteristic landscape; however, the changes should remain subordinate to the visual strength of the existing character.

CLASS IV: Landscapes with Class B scenic quality and high visual sensitivity in the seldom seen visual zone, or with Class B scenic quality and medium or low visual sensitivity in the background

or seldom seen zones, or with Class C scenery quality (except with high sensitivity in the foreground/middle ground zone). Changes may subordinate the original composition and character must be reflect what could be a natural occurrence within the characteristic landscape.

MANAGEMENT AND CONTRAST RATING OBJECTIVES FOR VRM CLASSES

For activities proposed on public land, impacts are evaluated with the visual resource contrast rating system, a method of evaluating the visual contrast of a proposed activity with the existing landscape character.

The amount of contrast is measured by separating the landscape into major features (land and water surface, vegetation, and structures) and then predicting the magnitude of change in contrast of each of the basic elements (form, line, color, and texture) to each of the features. Assessing the amount of contrast for a proposed activity in this manner which indicates the severity of impact and serves as a guide in determining what is required to reduce the contrast so it will meet the visual management class requirements for the area.

Objectives for the VRM classes is to preserve the existing character of the landscape. This class

provides for natural ecological changes; however, it does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention.

CLASS II: The objectives of this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may not be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color and texture found in the predominant natural features of the characteristic landscape.

CLASS III: The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.

CLASS IV: The objective of this class is to provide for management activities which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities through careful location, minimal disturbance, and repeating the basic elements.

APPENDIX I-1

WILDERNESS INVENTORY REPORT

PEÑA BLANCA



INTRODUCTION

The Bureau of Land Management (BLM) exchanged lands to the State of New Mexico for lands in the Organ Mountains in 1986 and 1988. The land acquired by the BLM plus adjacent public land had not all been included in the initial inventory for wilderness suitability that was conducted in the Las Cruces District during 1979. Sections 201 and 202 of the Federal Land Policy and Management Act (FLPMA) provide for ongoing inventories of public land resources and identification of significant areas through the Resource Management Planning (RMP) process.

Acquisition of State trust land in the Organ Mountains has created a block of 4,441 acres of public land in the vicinity of Peña Blanca, a prominent geologic feature near the south end of the Organ Mountains. This report evaluates the wilderness study potential of the area.

SIZE

The Peña Blanca WSA contains 4,441 acres of public land. The area meets the size requirements of the Wilderness Act of 1964 by having "...at least 5,000 acres of land or is of sufficient size as to make practicable it's preservation and use in an unimpaired condition." Although the area is less than 5,000 acres, it is large enough to be effectively preserved in a natural condition. Furthermore, 1,080 acres of adjacent private land that has been identified for acquisition in the Southern Rio Grande Plan Amendment and the Organ Mountains Coordinated Resource Management Plan would add sufficient acreage to bring the roadless area to 5,521 acres. Acquisition efforts for this private land are ongoing. The WSA is bounded on the east by the Fort Bliss Military Reservation, on the south and west by a road, and on the north end and on the northwest and southwest corners by private land.

NATURALNESS

Human imprints are substantially unnoticeable throughout the WSA, with the imprints consisting of livestock developments such as fences, dirt tanks, and a rock dam. Vehicle ways lead to most of the dirt tanks and rock dams. A summary of the imprints of man's work in the WSA is shown in Table I-1.

The interior fences are old, barbed wire and wood post fences that are not visible except from nearby. These fences are non-functional in their current condition. The boundary fence is built with steel posts and barbed wire, and is also not visible except from nearby.

The dirt tanks are all nestled in low spots in the drainages and so are not easily discernable. All are old and overgrown with native vegetation, and none appear to be functional for long-term storage of runoff. Achenback Tank is located in the upper part of Achenback Canyon and only visible from a 40-acre area of the canyon and adjacent hills. The dam is breached and the pond is silted in. It would require reconstruction with hand tools or with outdated tools and draft horses as there is no access for motor vehicles or heavy equipment into the upper canyon. The remaining dirt tanks are all small, with the two in Section 25 being less than 1/4 acre each, and the tank in Section 36 being less than 1/2 acre. The small tanks in Section 25 are not on a main drainage channel, and have only about a 40-acre watershed slope above them. They probably hold a small amount of water for a few weeks during the rainy season. The tank in Section 36 is in need of maintenance as the dike is breaching and the pit is silting in. The rock tank used to feed a concrete trough through a steel pipe, but the tank is completely silted in and the pipe is gone.

Approximately 1.1 miles of the vehicle ways provide vehicular access to the dirt tanks, while the remaining 1.5 miles provide a means for recreational users to get closer to the mountains than the road allows.

The entire WSA appears to have been affected primarily by the forces of nature. The few developments are not substantially noticeable in the area as a whole.

OPPORTUNITIES FOR SOLITUDE

The entire WSA is dissected by a series of small, narrow, rocky canyons interspersed by high, steep, rocky ridges. Woody vegetation in the canyon bottoms and rock outcrops on the hillsides compliment the topographic screening of the canyons and ridges, creating a multitude of possibilities for isolating individuals and groups from one another. Visitation to the area is slight, and despite the proximity of major population centers, the area seems very remote. The topography and location of the area allow it to provide outstanding opportunities for solitude.

OPPORTUNITIES FOR PRIMITIVE AND UNCONFINED RECREATION

The WSA provides opportunities for primitive and unconfined types of recreation including hiking, camping, backpacking, hunting, sightseeing, photography, and wildlife observation. The area provides some of the best quail and rabbit hunting in Dona Ana County, and when deer-entry hunts are held by the New Mexico Department of Game and Fish, some of the biggest mule deer in southern New Mexico are taken from this area. The diversity and quality of these primitive and unconfined types of recreation are outstanding.

SUPPLEMENTAL VALUES

The WSA contains both ecological and cultural features of scientific, educational, scenic, and historic value. Many of the canyons contain seasonal springs, some of which provide water nearly yearlong. These springs create habitat for plants and animals that is extremely important in a desert environment. Several plants listed as endangered by the State of New Mexico occur in the area, some of which are under review for Federal listing as threatened or endangered species.

Archaeological sites in the WSA include midden rings and the famous Peña Blanca rockshelters. The Peña

Blanca rock shelters were professionally excavated by New Mexico State University in the 1980's and have provided the earliest known cultivated corn in the United States, a primitive variety with eight rows of kernels. Other significant information has been gathered from this site, but other sites in the inventory unit have not been inventoried, recorded, or excavated.

The scenic values of this portion of the Organ Mountains are also outstanding. While the red rhyolitic rocks do not equal the quartz monzonite spires of the Organ Needles, the scenery is spectacular. The inventory unit contains canyons of angular blocky rock outcrops arranged in pyramidal patterns, with other canyons containing ribbons of green oak trees between red rhyolite cliffs, or bands of mountain mahogany nestled deep in vertical crevices between white ridges of volcanic tuff. During the summer growing season, the hills are washed in a bright green hue from the thick carpet of grasses.

POSSIBILITY OF RECLAIMING HUMAN IMPACTS

The vehicle ways could all be revegetated through successful vehicle closure. The dirt tanks are currently not functional, and unless they are rebuilt, will not require vehicular access by the grazing permittee. They are currently revegetated and will continue to assume a more natural appearance over time.

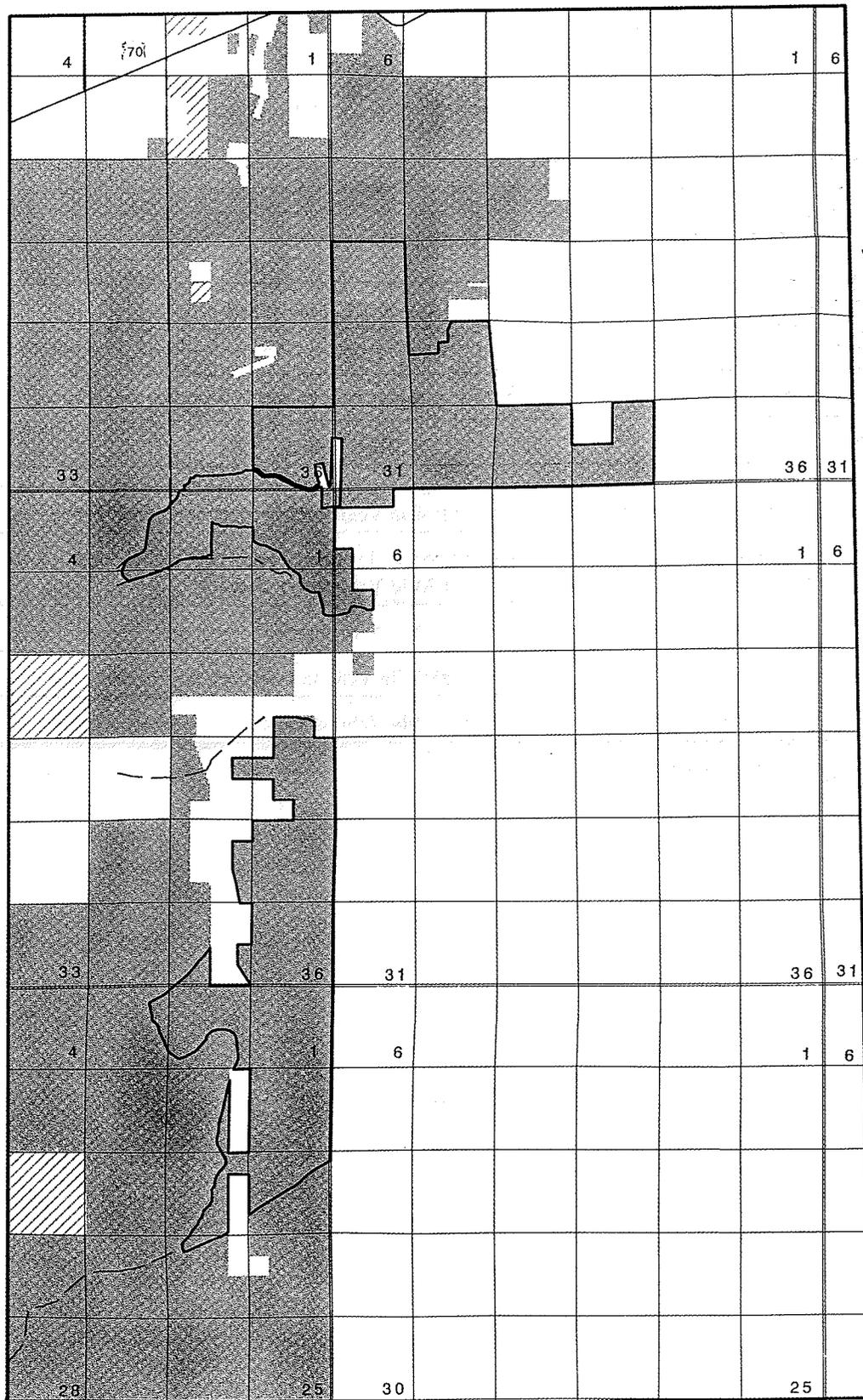
CONCLUSION

The Peña Blanca WSA is of sufficient size to allow its preservation in a natural condition. A 4,441-acre block of public land appears to be natural, with approximately 1,080 acres of adjacent private land also appearing to be natural. The private land has been identified for acquisition through the Southern Rio Grande Plan Amendment and the Organ Mountains Coordinated Resource Management Plan. Acquisition of this private land would result in a 5,521-acre unit. There are no private or State trust inholdings. The area offers outstanding opportunities for primitive and unconfined types of recreation and also has supplemental ecological, cultural, and scenic values. The Peña Blanca WSA will be studied to determine suitability for designation as wilderness in a subsequent legislative EIS.

TABLE I-1
HUMAN IMPRINTS IN THE PEÑA BLANCA WSA

LEGAL DESCRIPTION	IMPRINTS
T. 22 S., R. 3 E., Sections 13 and 24	.5 Mile Interior Fences
Section 25, NE $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$	Achenback Tank (Dirt)
Section 25, NW $\frac{1}{4}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$	Rock Tank
Section 25, SE $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$	2 Small Dirt Tanks
Section 25 and 26	1.4 Miles Vehicle Ways
Section 36, SW $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$	Dirt Tank
Section 36	.1 Mile Vehicle Way
T. 23 S, R. 3 E., Sections 1 and 2	2 Miles Boundary Fence .4 Mile Vehicle Way
Section 11	.2 Mile Vehicle Way
Section 13	.05 Mile Vehicle Way
Section 14	.5 Mile Vehicle Way

Source: Las Cruces District Files, 1992.



T-22S

T-23S

T-24S

R-3E

R-4E

R-5E

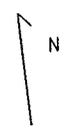
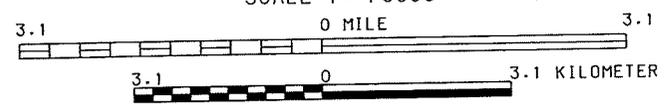
ORGAN NEEDLES and PENA BLANCA

WILDERNESS STUDY AREAS

Legend

- WSA BOUNDARY ———
- PUBLIC LAND [Stippled pattern]
- STATE LAND [Hatched pattern]
- OTHER LANDS [White]
- COUNTY ROAD - - - - -

SCALE 1: 75000



APPENDIX I-2

WILDERNESS INVENTORY REPORT

—ORGAN NEEDLES



INTRODUCTION

The Bureau of Land Management (BLM) exchanged lands to the State of New Mexico for lands in the Organ Mountains in 1986 and 1988. An additional exchange with The Nature Conservancy (TNC) in 1988 added land to the contiguous public land in the Organ Mountains. Additional acreage was acquired in an exchange with New Mexico State University in 1991. The land acquired by the BLM plus adjacent public land had not all been included in the initial inventory for wilderness suitability that was conducted in the Las Cruces District during 1979. Sections 201 and 202 of the Federal Land Policy and Management Act (FLPMA) provide for ongoing inventories of public land resources and identification of significant areas through the Resource Management Plan (RMP) process.

Acquisition of State trust and private lands in the Organ Mountains has created a block of 7,604 acres of public land in the vicinity of the Organ Needles in the central portion of the Organ Mountains. This report evaluates the wilderness values of the area.

SIZE

The Organ Needles WSA contains 7,604 acres of public land. The area meets the size requirements of the Wilderness Act of 1964 by having "...at least 5,000 acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition." The WSA is bounded on the east by the Fort Bliss Military Reservation and the White Sands Missile Range, on the south by Fort Bliss and private land, on the west by roads, and on the north end by private land and the 7,283-acre Organ Mountains WSA.

NATURALNESS

Human imprints are substantially unnoticeable throughout the WSA, with the imprints consisting of livestock developments such as fences and developed

springs. A summary of the imprints of man's work in the area is shown in Table I-2.

The trails listed in Table I-2 include a portion of the Baylor Pass National Recreation Trail, most of the Pine Tree National Recreation Trail, and the Crawford Trail. These trails do not significantly detract from the naturalness of the area and would be in conformance with wilderness management guidelines. The road/trail is the Dripping Springs Trail which is maintained as a service road.

The fences are constructed of barbed wire and wood posts that are not visible except from nearby. One of the fences is in need of repair and is nonfunctional in its current condition.

The developed spring and the rock dam are both nestled in small, steep canyons that effectively screen them from view except for the immediate vicinities. Riparian vegetation further hides them from view.

The entire WSA appears to have been affected primarily by the forces of nature. The few developments are not substantially noticeable in the area as a whole.

OPPORTUNITIES FOR SOLITUDE

The WSA contains the rugged, scenic, high spires of the mountains and is dissected by a series of small, narrow, rocky canyons interspersed by high, steep, rocky ridges. Woody vegetation in the canyon bottoms and rock outcrops on the hillsides compliment the topographic screening of the peaks, canyons, and ridges creating a multitude of possibilities for isolating individuals and groups from one another. Visitation to the area is heavy, particularly in the spring and fall, but is concentrated on the developed trails and despite the proximity of major population centers, users in the area feel very isolated. The topography and location of the area allow it to provide outstanding opportunities for solitude.

OPPORTUNITIES FOR PRIMITIVE AND UNCONFINED RECREATION

The WSA provides opportunities for primitive and unconfined types of recreation including hiking, rock climbing, camping, backpacking, hunting, sightseeing, photography, and wildlife observation. The Organ Needles are world renowned for their technical rock climbing opportunities, which have hundreds of mapped routes to the tops. Sugarloaf Peak is also well known by climbers. The quartz monzonite of the Needles and the Sugarloaf area is an extremely stable rock that provides excellent support desired for anchoring technical equipment. The area provides some of the best quail and rabbit hunting in Dona Ana County, and when deer-entry hunts are held by the New Mexico Department of Game and Fish, some of the biggest mule deer in southern New Mexico are taken from this area. The diversity and quality of these primitive and unconfined types of recreation are outstanding. Several plants and animals occur in the area that are found nowhere else, and are easy to observe and photograph.

SUPPLEMENTAL VALUES

The WSA contains ecological and cultural features of scientific, educational, scenic, and historic value. Many of the canyons contain seasonal springs, some of which provide water nearly yearlong. These springs create habitat for plants and animals that is extremely important in a desert environment. Several plants listed as endangered by the State of New Mexico occur in the area, some of which are under review for Federal listing as threatened or endangered species. The State-listed Organ Mountains chipmunk occurs through most of the area.

Archeological sites in the WSA include the famous La Cueva rockshelter and the historic Modoc mine millsite and Van Patten Mountain Camp. La Cueva rockshelter was professionally excavated by the University of Texas at El Paso in the 1970's and has provided a significant number of artifacts and data

on prehistoric cultures that have inhabited the cave for over 7,000 years. Other sites in the WSA have not been inventoried recorded or excavated.

The scenic values of this portion of the Organ Mountains are also outstanding. The quartz monzonite spires of the Organ Needles provide the most spectacular scenery in southern New Mexico, a view that the 60,000 inhabitants of Las Cruces relish daily, and local merchants constantly capitalize on in advertising. A 9,000-acre portion of the Organs including much of this unit has been designated as a Scenic Area of Critical Environmental Concern. The inventory unit contains massive spires of almost barren rock cleft with narrow chasms containing ribbons of green oak trees, with huge boulders along the flanks and alluvial fans. During the summer growing season, the hills are washed in a bright green hue from the thick carpet of grasses.

POSSIBILITY OF RECLAIMING HUMAN IMPACTS

There are no human impacts in the WSA that would need reclamation to enable management as wilderness, and in fact it would violate the Antiquities Act and Archeological Resources Protection Act to disturb most of the human imprints in the area.

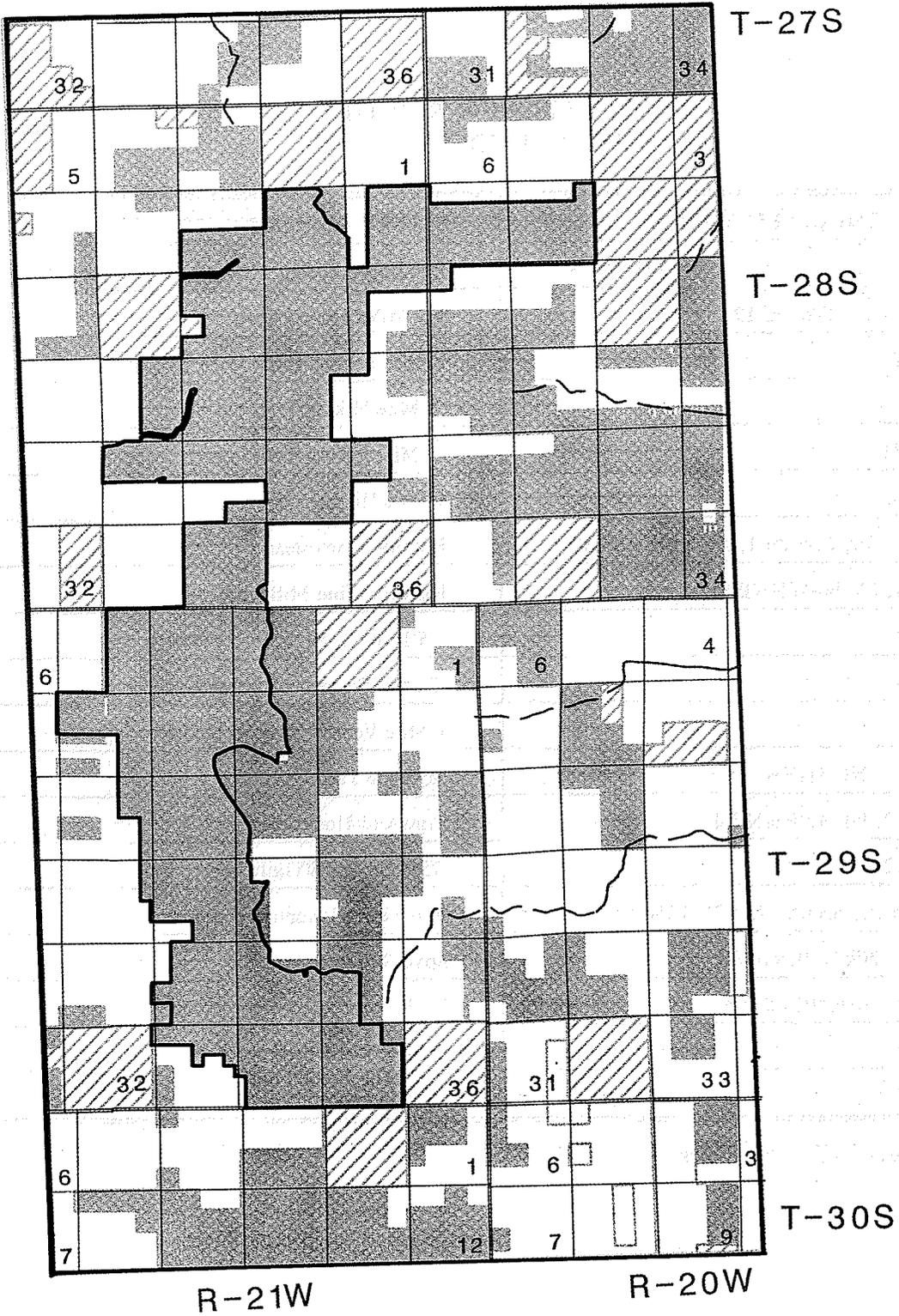
CONCLUSION

The Organ Needles WSA is of sufficient size to allow its preservation in a natural condition. A 7,604-acre block of public land was inventoried, which appears to be natural. There are no private or State trust inholdings, although a patented mining claim and the access road to it have been excluded from the unit. The area offers outstanding opportunities for primitive and unconfined types of recreation and also has supplemental ecological, cultural, and scenic values. The Organ Needles WSA will be studied to determine suitability for designation as wilderness in a subsequent legislative EIS.

TABLE I-2
HUMAN IMPRINTS IN THE
ORGAN NEEDLES WSA

LEGAL DESCRIPTION	IMPRINTS
T. 22 S., R. 3 E., Section 36, SE $\frac{1}{4}$ SE $\frac{1}{4}$ NW $\frac{1}{4}$	Developed Spring
T. 22 S., R. 4 E., Section 19	1.5 Miles Hiking Trail
Section 29	1 Mile Hiking Trail
Section 30	.5 Mile Hiking Trail
Section 31	.5 Mile Hiking Trail
Section 32	1 Mile Hiking Trail
T. 23 S., R. 3 E., Section 1, NE $\frac{1}{4}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$	Historic Homestead
Section 1, SW $\frac{1}{4}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$	Historic Mine Millsite
Section 1	1.5 Miles Trail
Section 1	.5 Mile Fence
Section 2	1 Mile Vehicle Way
Section 12, NE $\frac{1}{4}$ NE $\frac{1}{4}$.25 Mile Trail
Section 12, NE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$	Crawford Homestead
Section 12	.75 Mile Road/Trail
T. 23 S, R. 4 E., Section 7, SE $\frac{1}{4}$ SE $\frac{1}{4}$ NW $\frac{1}{4}$	Van Patten Mountain Camp
Section 7, NW $\frac{1}{4}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$	Boyd Sanatorium
Section 7, NE $\frac{1}{4}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$	Rock Tank
Section 7	.5 Mile Road/Trail
Section 7	.3 Mile Fence

Source Las Cruces District Files, 1992.

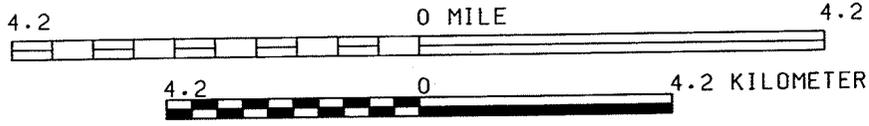


GRAY PEAK WILDERNESS STUDY AREA

- Legend**
- WSA BOUNDARY
 - ▨ PUBLIC LAND
 - ▩ STATE LAND
 - OTHER LANDS



SCALE 1: 100000



APPENDIX I-3

WILDERNESS INVENTORY REPORT

GRAY PEAK



INTRODUCTION

The Bureau of Land Management (BLM) exchanged lands to Joe Jackson in 1989 and to The Nature Conservancy (TNC) in 1990 for lands in the Peloncillo Mountains in southern Hidalgo County. The lands acquired by the BLM were not included in the 1979 initial inventory for wilderness suitability, and contiguous land did not make the initial inventory cut because the land was in isolated parcels of less than 5,000 acres. Sections 201 and 202 of the Federal Land Policy and Management Act (FLPMA) direct the BLM to conduct ongoing inventories of public land resources and identification of significant areas through the Resource Management Plan (RMP) process.

Acquisition of private land in the Peloncillo Mountains between Antelope Pass and Post Office Canyon has created a block of 17,400 acres of public land. This report evaluates the wilderness values of the area.

SIZE

The Gray Peak WSA contained 17,400 acres of public land. Roads running north and south through the eastern portion of the area leave a 14,678-acre contiguous WSA. The area meets the size requirements of the Wilderness Act of 1964 by having at least 5,000 acres of land. The area is large enough to be effectively preserved in a natural condition. The WSA is bounded on the north, west, and south by private and State trust lands, and on the east by roads and private and State trust lands. Acreage changes from the Draft RMP/EIS were to delete private land that was inadvertently included in the initial inventory.

NATURALNESS

Human imprints are substantially unnoticeable throughout the WSA. Imprints are primarily livestock developments, with roads leading to some

of the developments. Roads leading to some of these developments have excluded 2,722 acres of the contiguous public land from the I-3 lists imprints of man's work within the WSA.

Most of the livestock fences are old wood and barbed wire fences that are not visible except from nearby. Some of the fences are abandoned and consist only of scattered wood posts with occasional strands of barbed wire. The BLM has recently constructed approximately 3 miles of new fence in the vicinity of Owl Canyon to benefit desert bighorn sheep.

The dirt tanks and concrete dams are all set in vegetated drainage bottoms where brush or trees obscure visibility of the structures from most directions. The concrete dams support seasonal to perennial ponds and adjacent riparian vegetation that makes these structures blend extremely well with the natural environment. The roads lead to livestock developments such as a well, a developed spring, storage tanks, and dirt tanks. The roads that are listed in the table have actually been excluded from the unit by drawing the boundary around them (cherry-stemmed), but they are listed to show that human developments in the unit do not dominate the landscape. None of the man-made structures cover more than a quarter acre, and the cumulative total of these developments is less than .1 percent of the WSA.

The entire WSA appears to have been affected primarily by the forces of nature, and the developments are not substantially noticeable in the area as a whole. The unit exhibits an extremely high degree of naturalness, and the landscape and biota reflect a lack of human manipulation.

OPPORTUNITIES FOR SOLITUDE

The WSA consists of the most rugged and remote portion of the Peloncillo Mountains. The WSA includes a major mountain ridgeline that is 11 miles

long with five major peaks along it and dozens of smaller hills and ridges, all separated by canyons ranging from a few hundred yards to almost a mile across. Oak, pinyon pine, and juniper trees on the higher hills provide an excellent opportunity for vegetation screening that compliments the topographic screening of the area, providing innumerable possibilities for isolating groups and individuals from each other. Visitation to the area is extremely low because of the distance from major population centers and the closure of the area to deer and javelina hunting, which are the two dominant uses of public land in the area. All these factors combine to provide outstanding opportunities for solitude.

OPPORTUNITIES FOR PRIMITIVE AND UNCONFINED RECREATION

The WSA provides opportunities for primitive and unconfined types of recreation including hiking, camping, backpacking, hunting, photography, and wildlife observation. The area supports several species of animals and plants that are not found in other parts of New Mexico, and so provides opportunities for viewing wildlife that are otherwise unavailable. The area provides some of the best hunting in New Mexico for feral pigs. The area is currently closed to deer and javelina hunting, but if it is opened some day could provide excellent opportunities for hunting both of these species. The area also supports a small herd of desert bighorn sheep, which could provide a unique hunting opportunity.

SUPPLEMENTAL VALUES

The WSA contains ecological and cultural features of scientific, educational, scenic, and historic values. Many of the canyons contain seasonal springs that are important sources of water for wildlife and plants in a desert climate. Rare fauna known from the area includes the Mexican long-tongued bat, the coati, desert bighorn, and the State endangered green rat snake. TNC lists over 30 State sensitive plant species from this area including the Federal Candidate night-blooming *Cereus greggii*. This portion of the Peloncillo Mountains supports one of the most extensive and well-developed examples of Madrean evergreen woodland in New Mexico. Vegetation is characterized by many Mexican species of oaks and the Mexican pinyon pine (*Pinus*

cembroides). No formal archaeological surveys have been conducted, but caves in the area show evidence of prehistoric use, and some sites show great potential for significant cultural deposits. The area provides opportunities for scientific study of wildlife that are not found in other mountain ranges in New Mexico including both Sonoran desert and Mexican highlands species.

The scenic values of this portion of the Peloncillo Mountains are outstanding. The western escarpment overlooks Rodeo and the San Simon Valley, and provides a spectacular vista from the Chiricahua Mountains including the Chiricahua Wilderness and U.S. Highway 80. On the eastern side, the WSA is not visible until the hills are entered, but the eastern side including areas like King Mountain, which consists of sculpted volcanic tuffs supporting dense stands of oak trees in crevices, include some of the most scenic mountains in the Mimbres Resource Area. Gray Peak at the north end of the unit is the largest and most spectacular mountain along State Road 9.

POSSIBILITY OF RECLAIMING HUMAN IMPACTS

The existing developments comprise such a miniscule portion of the area as to preclude any need for reclamation. The existing roads to livestock developments have been excluded from the unit by boundary adjustments. Two old roads through the area have been naturally reclaimed by shifting of alluvial material that has reestablished natural topography and vegetation. No roads or vehicle ways requiring reclamation exist within the WSA since the roads were excluded from the WSA.

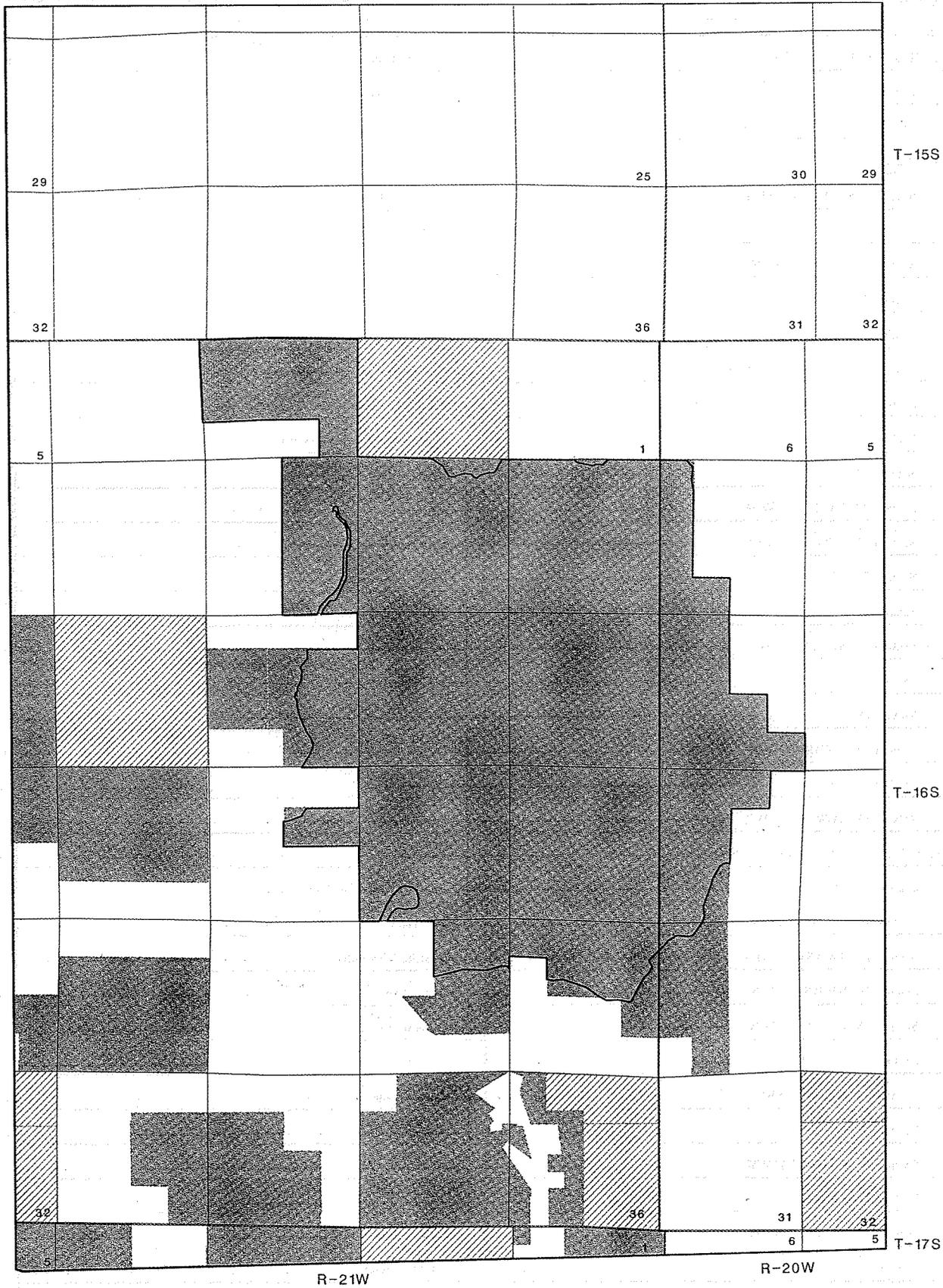
CONCLUSION

The Gray Peak WSA is of sufficient size to allow its preservation in a natural condition. There are no private or State trust inholdings. A 15,878-acre roadless area exists which appears to be natural and offers outstanding opportunities for primitive and unconfined types of recreation including hunting, hiking, backpacking, photography, and wildlife viewing. The area also contains supplemental values including cultural resources, scenic values, and endangered species. The Gray Peak WSA will be studied to determine wilderness suitability in a subsequent legislative EIS.

HUMAN IMPRINTS IN THE GRAY PEAK WSA

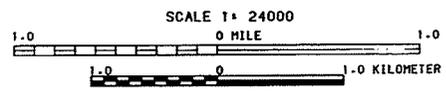
LEGAL DESCRIPTION	IMPRINTS
T. 28 S., R. 20 W., Section 7,	2 Miles Fence
Section 8	1 Mile Fence
Section 18, SE $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$	Wildlife Water Catchment
T. 28 S., R. 21 W., Section 10	.25 Mile Road
Section 10, NW $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$	Water Tank
Section 11	1.25 Miles Fence
Section 11, NE $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$	Dirt Tank
Section 11, SE $\frac{1}{4}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$	Dirt Tank
Section 12	.75 Mile Fence
Section 13, NW $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$	Wildlife Water Catchment
Section 14	1.2 Miles Fence
Section 15	.5 Mile Road, 1.2 Miles Fence
Section 21	.5 Mile Road
Section 22, NE $\frac{1}{4}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$	Dirt Tank
Section 22, SW $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$	Dirt Tank
Section 22, SE $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$	Well
Section 22	.5 Mile Road
Section 26, SE $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$	Cement Dam
Section 27	1.7 Miles Fence
Section 28	.75 Mile Road
Section 28, SW $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$	Developed Spring
Section 33	.25 Mile Road
Section 33, SW $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$	Storage Tank
T. 29 S., R. 21 W., Section 3, SW $\frac{1}{4}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$	Dirt Tank
Section 4, NW $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$	Wildlife Water Catchment
Section 16, NW $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$	Dirt Tank
Section 16, SW $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$	Wildlife Water Catchment
Section 16, NW $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$	Cement Dam
Section 16, NW $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$	Cement Dam
Section 21, SW $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$	Cement Dam
Section 21, NE $\frac{1}{4}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$	Storage Tank
Section 22,	.6 Mile Pipeline
Section 27, NE $\frac{1}{4}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$	Dirt Tank
Section 27, SW $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$	Corrals
Section 27, SW $\frac{1}{4}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$	Cement Dam
Section 35	1.1 Mile Road
T. 30 S., R. 21 W., Section 3, NW $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$	Dirt Tank
Section 3	.1 Mile Road

Source: Las Cruces District Files, 1992.



**APACHE BOX
WILDERNESS STUDY AREA**

- Legend**
- WSA BOUNDARY ———
 - PUBLIC LAND [stippled box]
 - STATE LAND [diagonal hatching box]
 - OTHER LANDS [white box]



APPENDIX I-4

WILDERNESS INVENTORY REPORT

APACHE BOX



INTRODUCTION

The Bureau of Land Management (BLM) studied a 932-acre area in Apache Box Canyon for wilderness suitability in the Arizona Mohave Final Wilderness Environmental Impact Statement (BLM 1989). This document recommended the Apache Box as nonsuitable for wilderness designation based on the nonsuitable recommendation of the contiguous Forest Service Hell's Hole wilderness study area (WSA) and the small size of the Apache Box WSA. In 1990, the BLM exchanged lands with The Nature Conservancy (TNC), acquiring new land up Apache Box Canyon from the existing WSA and connecting the WSA to additional BLM-administered public land that was not previously inventoried or studied for wilderness potential. Sections 201 and 202 of the Federal Land Policy and Management Act (FLPMA) direct the BLM to conduct ongoing inventories of public land resources and identification of significant values through the Resource Management Plan (RMP) process.

Acquisition of private land in Apache Box has created a block of 6,840 acres of public land from Apache Box to south of Crookson Peak. This report evaluates the wilderness values of the area.

SIZE

The Apache Box WSA contained 6,840 acres of public land. A road from Bittercreek to Red Kelly Tank and another in Alexander Canyon cut off approximately 611 acres, leaving a WSA of approximately 6,229 acres. The area meets the size requirements of the Wilderness Act of 1964 by having "...at least 5,000 acres or sufficient size as to make practicable its preservation and use in an unimpaired condition." The WSA is bounded on the east and west by private land, on the south by a road that is mostly on public land, and on the north by private and State trust land and the Gila National Forest. There are no private or State trust inholdings.

NATURALNESS

Human imprints are noticeable within parts of the WSA. Livestock fences are numerous and have been built with wood posts cut from juniper trees. Additional illegal woodcutting has occurred through much of the high country from the Apache Box to the southern end of the unit, to the point where most ridges have numerous stumps where trees once were. The mining road into the Box is a scar that is discernable from the western escarpment for 2 miles south of the Box, and switchbacks of this road leading down into the Box plus drill pads at the saddle south of and within the lower portion of the Box negatively impact the naturalness of 2 acres. Although the total disturbed area including the road and drill pads is approximately 2 acres, these impacts draw the attention of observers over a considerably larger area (160 acres). Approximately 9 miles of livestock fences exist within the area, and are located such that it is difficult to be more than 1 mile from a fence within the area. Eight rock, dirt, or concrete tanks, four developed springs, and a windmill also exist within the area, averaging out to one livestock water development per 482 acres. Table I-4 lists existing human impacts within the WSA.

The high level of development for livestock management detracts from the naturalness of the area. The livestock water developments are not substantially noticeable except from close by. The fences are often conspicuous from up to 1/2 mile away because of their locations on ridges and the lack of trees that have been cut down to build the fences. The Apache Box Canyon appears to be natural except for the mining development.

OPPORTUNITIES FOR SOLITUDE

The WSA is located in a very remote and little used portion of New Mexico, and the whole area provides opportunities for solitude. The mountainous terrain and numerous small canyons provide excellent

opportunities for solitude. The steep, narrow Apache Box Canyon is strewn with large to immense boulders, making travel through the canyon extremely arduous. The difficulty of traversing the canyon coupled with the roar of the rushing stream make the canyon bottom one of the best places in southwestern New Mexico to experience solitude.

OPPORTUNITIES FOR PRIMITIVE AND UNCONFINED RECREATION

The WSA provides opportunities for primitive and unconfined recreation including hiking, hunting, camping, photography, and wildlife observation. The diversity and quality of these recreation opportunities in the Apache Box Canyon are exceptional, primarily because of the beauty of the riparian area and extremely enriched diversity of plants and animals supported by the stream. Opportunities for primitive and unconfined recreation throughout the remainder of the area are not outstanding compared to the same types of recreation on surrounding public and Forest Service lands.

SUPPLEMENTAL VALUES

The WSA contains both ecological and cultural features of scientific, educational, scenic, and historic values. The perennial water course in Apache Box Canyon supports a nearly pristine riparian area that is home to an extremely diverse flora including eight oak species, one of which (Palmer oak) is considered globally rare (Dunmire 1990). The riparian community further supports both Federally endangered and State endangered species. Several caves show evidence of prehistoric habitation but have not been recorded. A Mogollon rockshelter and an historic house mound, road, and sheep pen have been recorded in the unit. Neither of the recorded sites appear to qualify for listing in the National Register of Historic Places.

POSSIBILITY OF RECLAIMING HUMAN IMPACTS

The livestock developments are fairly noticeable throughout much of the area but will become substantially less noticeable as trees are reestablished on hills and ridges where they have been cut for fence posts and firewood. The road to the drill pads in Apache Box could easily be reclaimed by natural shifting of the talus on the slope in which it was cut. Likewise, the drill pads in Apache Box Canyon could naturally reclaim themselves over time through alluvial and colluvial deposition of soil and rock, and revegetation of the natural plant community. The drill pad at the saddle south of the Box Canyon would require some earthwork to approximate natural contours. The quarry is no longer in use and is being naturally revegetated. Vehicle ways would revegetate substantially with limited use.

CONCLUSION

The Apache Box WSA is of sufficient size to allow its preservation in an unimpaired condition. A 6,227-acre block of public land is roadless, but naturalness is variable throughout the area. The Apache Box Canyon is highly natural except for 2 acres of roads and drill pads. The remainder of the area does not have significant surface disturbance, but livestock developments are numerous and in some instances fairly noticeable because of a long-term trend of wood cutting for fence posts and firewood. Many of the hills and ridges look fairly heavily cut over, with abundant stumps and few live trees. The area provides outstanding opportunities for solitude and for primitive and unconfined types of recreation and also has supplemental ecological, scenic, and cultural values, particularly within the Box Canyon. The Apache Box WSA will be studied to determine suitability for designation as wilderness in a subsequent legislative EIS.

**TABLE I-4
HUMAN IMPRINTS IN THE APACHE BOX WILDERNESS STUDY AREA**

LEGAL DESCRIPTION	IMPRINTS
T. 16 S., R. 20 W., Section 8, NE $\frac{1}{4}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$	Dirt Tank
Section 18	.5 Mile Boundary Fence
Section 19	.5 Mile Vehicle Way
T. 16 S., R. 21 W., Section 3	.5 Mile Fence
Section 3, NW $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$	Smith Well
Section 3, SW $\frac{1}{4}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$	Dirt Tank
Section 3, NW $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$	2 Masonry Dams
Section 10, SE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$	2.5 Acre Drill Pads
Section 10	1 Mile Road
Section 11, SW $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$	Dirt Tank
Section 12, NE $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$	Cabin and Corrals
Section 12, SW $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$	Masonry Dam
Section 13, SE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$	Dirt Tank
Section 13, SE $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$	Apache Reservoir
Section 13	1.3 Mile Boundary Fences
Section 13	.2 Mile Vehicle Way
Section 14, NW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$	Fish Spring (developed)
Section 14, SE $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$	Indian Spring (developed)
Section 14	2 Miles Boundary Fences
Section 22, SW $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$	Developed Spring
Section 23, NE $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$	McNaire Spring (developed)
Section 23, SE $\frac{1}{4}$ SW $\frac{1}{4}$	Rock Quarry
Section 23	2 Miles Boundary Fences
Section 23	.5 Mile Road
Section 24, SE $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$	Cherry Reservoir
Section 24	1.2 Miles Vehicle Way
Section 24	.8 Mile Interior Fence
Section 25	.5 Mile Interior Fence

Source: Las Cruces District Files, 1992.

APPENDIX J

GILA RIVER WILD AND SCENIC RIVER INVENTORY REPORT SUMMARY



USDI HERITAGE CONSERVATION AND RECREATION SERVICE 1980

This inventory covered the Gila River from the San Carlos Indian Reservation in Arizona upstream to the confluence of the east and west forks in New Mexico. The inventory determined that the river is free-flowing but varies from pristine to broad sandy floodplains traversing low rolling terrain with agricultural development.

USDI NATIONAL PARK SERVICE 1982

This inventory found that the segment from San Carlos Reservoir in Arizona upstream to the confluence of the east and west forks of the Gila River contained outstandingly remarkable scenic, geologic, fish, wildlife, and cultural values. The narrative description states that:

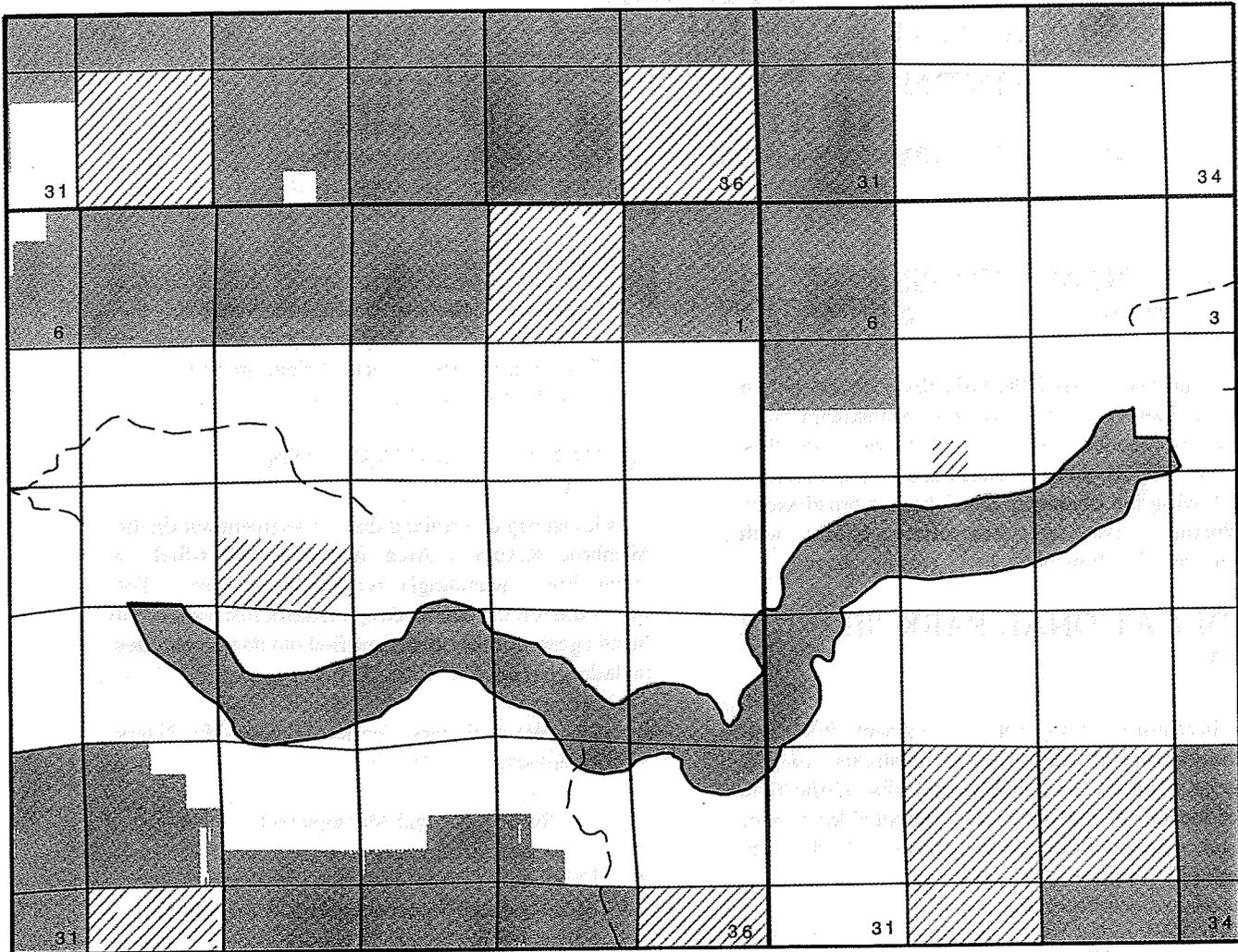
- Three areas in New Mexico have been identified as important fish habitat by the U.S. Fish and Wildlife Service.
- The Gila is recommended as a component of the New Mexico Rivers System.
- The Redrock Cliffs area has been identified as significant in the New Mexico Natural Areas Inventory.

- The river valley is important habitat for a variety of State-listed endangered species.
- The segment has the richest riparian avifauna in New Mexico.

AMERICAN RIVERS 1988

This inventory determined that the segment within the Mimbres Resource Area has been identified as containing outstandingly remarkable values. The report did not list outstandingly remarkable values but listed agencies that have identified outstanding values including:

- The National Park Service Nationwide Rivers Inventory.
- The Bureau of Land Management.
- The Nature Conservancy list of Priority Aquatic Sites for Biological Diversity Conservation.
- The New Mexico State Parks and Recreation Division.
- The American Whitewater Affiliation's list of outstanding whitewater streams.
- The Bureau of Outdoor Recreation.



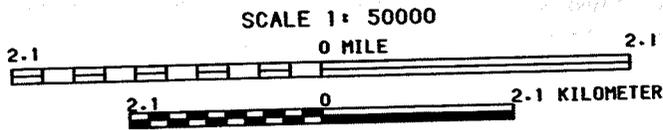
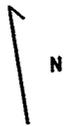
R-20W

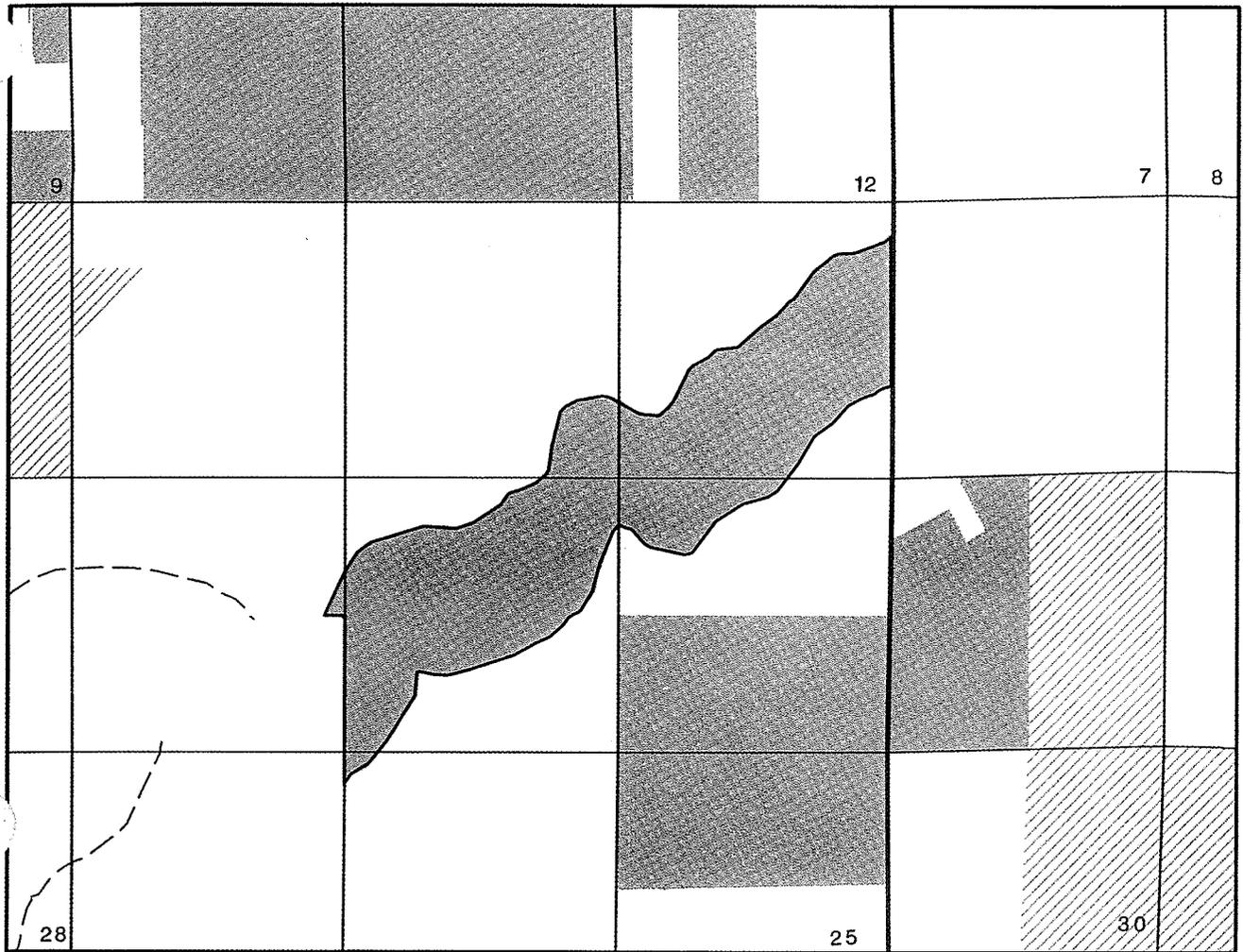
R-19W

GILA LOWER BOX
WILD and SCENIC RIVER STUDY AREA

Legend

- STUDY AREA BOUNDARY ———
- PUBLIC LAND 
- STATE LAND 
- OTHER LANDS 
- COUNTY ROAD - - - - -





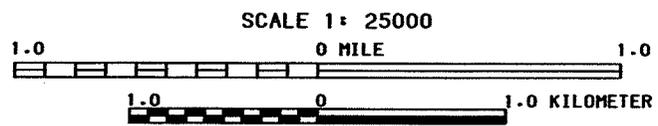
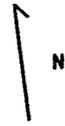
T-18S

R-18W

R-17W

GILA MIDDLE BOX

WILD and SCENIC RIVER STUDY AREA



Legend

- STUDY AREA BOUNDARY ———
- PUBLIC LAND
- STATE LAND
- OTHER LANDS
- COUNTY ROAD - - - - -

APPENDIX K



MAJOR SOIL TYPES IN THE MIMBRES RESOURCE AREA

SOIL TYPE	MAJOR SOIL SERIES	APPROXIMATE PERCENT SURVEY AREA
DONA ANA COUNTY		
Shallow, well drained soils that formed in eolian material and residuum of basalt. These soils are on uplands and slopes. Slopes range from 1-15 percent	Aftaden, Minlith	5.2
Shallow, well drained soils that formed in residuum of basalt. The soils are on lava flows and ridges. Slopes are 3-25 percent.	Akela, Lozier	4.4
Deep, excessively drained soils that formed in mixed alluvium on valley floors of wide arroyos above the Rio Grande Valley. Slopes are 0-40 percent.	Arizo, Canutio, Bluepoint, Caliza	9.2
Deep, well drained soils that formed in mixed alluvium along mountain fronts on fans and terraces. Slopes range from 2-10 percent.	Berino, Onite, Pinaleno	14.2
Deep, well drained soils that formed in alluvium modified by wind on fans and fan piedmonts. Slopes are 1-5 percent.	Bucklebar	14.2
Moderately deep to shallow, well drained soils that formed in alluvium on level basin floors, fans and terraces. Slopes are 0-3 percent.	Cacique, Cruces, Casito, Terino	3.3
Shallow, well drained soils that formed in gravelly alluvium in old valley fill, ridges and terraces. Slopes are 1-15 percent.	Cave, Tencee, Simona, Upton, Nickel, Harrisburg	6.7
Moderately deep, well drained soils that formed in gravelly alluvium over weathered granitic bedrock. Slopes are 5-15 percent.	Nolam	1.5
Shallow, well drained soils that formed in calcareous alluvium on uplands. Slopes range from 1-15 percent.	Masonfort	2.5
Shallow, well drained soils that formed in alluvium and colluvium that derived from mixed basic igneous bedrock. Slopes range from 13-75 percent.	Motoqua	3.0
Deep, somewhat excessively well drained soils that formed in eolian material on broad fans. Slopes are 1-3 percent.	Pintura, Yturbide	2.8
Deep, well drained soils that formed in alluvium on fans and basin floors. Slopes are 0-1 percent.	Reagan, Mimbres	2.6
Deep, well drained soils that formed in old unconsolidated alluvium that has been modified by wind and are on broad piedmont fans. Slopes are 0-1 percent.	Wink	16.4
Miscellaneous soil types found on non-BLM lands in Dona Ana County.		14
TOTAL		100%

MAJOR SOIL TYPES IN THE MIMBRES RESOURCE AREA (continued)

SOIL TYPE	MAJOR SOIL SERIES	APPROXIMATE PERCENT SURVEY AREA
GRANT COUNTY		
Moderately deep, well drained soils formed in colluvium and residuum derived mainly from acidic igneous rock. They are on mountains, ridges, and hills and the slope is 3 - 45 percent.	Abrazo, Luzena	20.1
Deep, excessively drained soils formed in alluvium derived from mixed sources. They are on floodplains and alluvial fans and the slope is 0 - 5 percent.	Arizo, Mimbres	.8
Deep, well drained soils formed on alluvial fans and plains. Slopes are 1 - 5 percent.	Continental, Bucklebar	6.8
Deep, excessively drained soils formed in alluvium derived from mixed sources. They are found on floodplains, stream channels, and alluvial fans. Slopes are 0-15 percent.	Ellicot, Paymaster	1.9
Deep, well drained soils formed in old alluvium and eolian material derived from conglomerate. They are found on ridges and hills. Slopes are 1 - 35 percent.	Guy, Lonti	11.6
Deep, moderate to well drained soils formed in alluvium derived from mixed sources. They are in bolsons and on flats. Slopes are 0 - 3 percent.	Hondale, Verhalen	.8
Deep, well drained soils formed in residuum and old alluvium. They are found on hills and plains. Slope is 2 - 15 percent.	Judd, Manzano, Tesajo	3.8
Deep, well drained soils formed in alluvium. They are found on alluvial plains and fans. Slope is 1 - 5 percent.	Mojave, Stellar, Verhalen	11.0
Deep, well drained soils formed in calcareous alluvium derived from mixed sources. They are found on alluvial fans, side slopes, and piedmonts. Slope is 2 - 15 percent.	Nickel	3.5
Deep, well drained soils formed in calcareous alluvium. They are found on the sides of piedmonts, terraces, alluvial fans and foot slopes. Slopes are 0 - 8 percent.	Tres Hermanos	7.6
Miscellaneous soils found on non-BLM lands in Grant County.		32.1
TOTAL		100%

MAJOR SOIL TYPES IN THE MIMBRES RESOURCE AREA (continued)

SOIL TYPE	MAJOR SOIL SURVEY	APPROXIMATE PERCENT SURVEY AREA
HIDALGO COUNTY		
Excessively to well drained soils formed in sediment from igneous rock. These soils are on alluvial fans and bottoms. Slopes are 0 - 9 percent.	Arizo, Comoro, Grabe, Glendale, Whitlock	.8
Well drained soils formed in material from igneous rock. These soils are found on alluvial fans on uplands. Slope is 0 - 5 percent.	Berino, Forrest, Mohave, Pintura, Sonoita, Stellar	20.08
Well drained soils formed from material weathered from granite. These soils are found on hills and alluvial fans on uplands. Slope is 1 - 25 percent.	Chiricahua, Hap	1.2
Well drained soils formed from mixed igneous rocks mainly rhyolite. These soils are found on old alluvial fans on uplands. Slope is 0 - 15 percent.	Cloverdale, Eicks	2.4
Well drained soils formed from mixed igneous rocks. These soils are found on foot slopes of mountains, hills and alluvial fans. Slope is 1 - 60 percent.	Eba, Lehmans	18.1
Well drained soils formed from mixed igneous rock. These soils are found on alluvial fans on uplands. Slope is 0 - 5 percent.	Frye, Gila, Mimbres, Pinaleno	3.35
Well drained soil formed from weathered basalt bedrock. These soils are found on hills. Slope is 0 - 45 percent.	Graham	
Well drained soils formed from igneous and sedimentary rock. These soils are found on alluvial fans on uplands. Slope is 0 - 20 percent.	Jal, Karra, Yana	3.35
Well drained soils formed from mixed igneous rock. These soils are found on alluvial fans and bottoms. Slope is 0 - 3 percent.	Hawkeye, Pima	.45
Well drained soils that formed from mixed igneous and sedimentary rock. These soils are found on broad alluvial fans. Slope is 0 - 5 percent.	Hondale, Maricopa, Ubar, Vekol	6.8
Well drained soils that formed in old alluvium from basic igneous rock. These soils are found on alluvial fans on uplands and were deposited on older alluvium. Slope is 1 - 4 percent.	Keno	.3
Well drained soils that formed in gravelly old alluvium from mixed igneous rock. These soils are found on piedmont slopes. Slope is 0 - 60 percent.	Nickel, Tres Hermanas, Upton	14.95
Undrained basins consisting of clay and silty clay sediments that have been deposited by water. Slopes are 0 - 1 percent.	Playas	1.35
Well drained soils formed from mixed igneous and limestone rock. These soils are found on olds alluvial fans on uplands. Slope is 0 - 5 percent.	Terino, Tuney	.15
Moderately well drained soils formed in fine textured alluvium. These soils are found in alluvium bottoms. Slope is 0 - 1 percent.	Verhalen	2.6
Excessively drained soils that formed in coarse textured alluvium. These soils are found on alluvial fans. Slope is 0 - 9 percent.	Yturbide	.95
Miscellaneous soils found on non-BLM lands in Hidalgo County.		23.17
TOTAL		100%

MAJOR SOIL TYPES IN THE MIMBRES RESOURCE AREA (concluded)

SOIL TYPE	MAJOR SOIL SERIES	APPROXIMATE PERCENT SURVEY AREA
LUNA COUNTY		
Deep somewhat excessively drained soils that formed in mixed material deposited on floodplains and alluvial fans. Slope is 0 - 10 percent.	Bluepoint, Onite, Verhalen	5.7
Deep well drained soils formed in mixed igneous or granitic rock. These soils are found on fans, foot slopes or around the base of mountains. Slope is 0 - 10 percent.	Eba, Sonoita	4.0
Deep well drained soils formed in valley fill sediments derived from mixed igneous rock. These soils are found on intermountain valley floors. Slope is 0 - 3 percent.	Hondale	13.8
Shallow well drained soils that are residual soils formed over acid igneous rock. These soils are found on hills and lower mountain slopes. Slope is 0 - 25 percent.	Lehmans, Graham, Ledru, Lozier	8.9
Deep well drained soils formed in mixed alluvium. These soils are found on floodplains, terraces, and alluvial fans. Slope is 0 - 5 percent.	Mimbres Harkey, Jal, Maricopa	12.7
Deep well drained soils formed on old alluvial fans. They are found on alluvial fans. Slope is 0 - 5 percent.	Mojave, Stellar, Berino	18.5
Excessive to well drained soils formed in old alluvium sediments and sandy deposits that have been reworked by wind. Slope is 0 - 5 percent.	Pintura, Berino, Simona, Akela	12
Miscellaneous soils found on non-BLM lands in Luna County.		10.9
TOTAL		100%

Source: Soil Conservation Service Soil Surveys 1973, 1980, 1983.

APPENDIX L-1
THREATENED, ENDANGERED, AND SENSITIVE PLANT SPECIES
POTENTIALLY OCCURRING ON PUBLIC LAND IN THE MIMBRES RESOURCE AREA^{a/}

Plant Persistence ^{b/}	Scientific Name	Common Name (Family)	Status ^{c/}	Occurrences in the Resource Area	Habitat
S	<u>Acacia millefolia</u>	None (Fabaceae)	SR	Found just north of the Mexican border in Guadalupe Canyon, Guadalupe Mountains.	Plants occur in populations of few individuals.
PF	<u>Agastache verticillata</u>	None (Lamiaceae)	SS	Collected in the Organ Mountains on the military reservations.	Mountainous regions at altitudes over 7,000 feet.
S	<u>Apacheria chiricahuensis</u>	Cliff bitterbrush (Crossosomataceae)	SS	Found in Chiricahua Mountains and Apache Box.	Occurs in cliff crevices of rhyolitic rock between 5,800 to 8,000 feet.
PF	<u>Asclepias uncialis</u>	Milkweed (Asclepiadaceae)	SR	Found near Silver City.	Occurs in pinyon-juniper stands.
AF	<u>Aster blepharophyllus</u>	Aster (Asteraceae)	C-2	Found on Las Playas Springs, Hidalgo County on private land.	Occurs on the margins of playas.
PF	<u>Astragalus castetteri</u>	Castetter's milk-vetch (Leguminosae)	SS	Found in San Andres Mountains on military and public lands.	Occurs among pinyon and juniper, on limestone, between 5,000 to 6,000 feet.
PF	<u>Astragalus cobrensis</u> var. <u>maguirei</u>	None (Fabaceae)	SS	Found in Guadalupe Pass, Guadalupe Mountains.	Occurs on soft powdery, gray soils.
S	<u>Atriplex griffithsii</u>	Griffith's saltbush (Chenopodiaceae)	SS	Found on dry lakebeds.	Found on the edges of dry lakebeds (playas) at 4,200 feet.
PF	<u>Brickellia lemmoni</u>	Wootton's bricklebush (Asteraceae)	SR	Found in Maverick Spring Canyon, Peloncillo Mountains.	Occurs under oaks among grasses.
PF	<u>Brickellia simplex</u>	Plain bricklebush (Asteraceae)	SR	Found in Maverick Spring Canyon and Skull Canyon, Peloncillo Mountains.	Occurs in grassy canyon bottoms under oaks between 5,600 and 5,756 feet.
PF	<u>Castilleja organorum</u>	Organ Min. Paintbrush (Scrophulariaceae)	SR	Found in Dripping Springs, Organ Mountains on public land.	Occurs on rocky sides of the Organ Mountains at altitudes of 5,700 feet.

APPENDIX L-1 (Continued)
THREATENED, ENDANGERED, AND SENSITIVE PLANT SPECIES
POTENTIALLY OCCURRING ON PUBLIC LAND

Plant Persistence ^v	Scientific Name	Common Name (Family)	Status ⁱ	Occurrences in the Resource Area	Habitat
C	<u>Cereus greggii</u> var. <u>greggii</u>	Night-blooming cereus (Cactaceae)	C-2/SE	Found in the Alamo Hueco Mountains Rough & Ready Hills, Las Uvas Mountains, Franklin Mountains, Flourite Ridge, Carrizalillo Hills, Little Hatchet Mountains, Sierra Rica Mountains, Peloncillo Mountains, Organ Mountains, Potrillo Mountains, and Pyramid Mountains.	Populations are widespread with a few individuals in each. Grows on gravelly range sites with bush muhly, Mormon tea, creosotebush, and range ratany; under or near creosotebush and mesquite in rocky areas; common at lower elevations; granite soil (rhyolite) and deep light soils. Altitudes 2,000 to 4,500 feet.
AF	<u>Cleome multicaulis</u>	Slender Spider-flower (Capparaceae)	C-2/SE	Collected in the Mesilla Valley, Dona Ana County and in Grant County.	Occurs on alkaline sinks, old saline lake beds, and cienegas from 3,000 to 7,000 feet.
C	<u>Coryphantha oreuttii</u> var. <u>oreuttii</u>	Pincushion (Cactaceae)	SE	Found in Mahoney Park, Florida Mountains on private land, found in the Big Hatchet Mountains, and collected on Granite Gap, Peloncillo Mountains.	Occurs on black limestone at altitudes of 5,200 feet (<u>koenigii</u>) or solitary to clustered with few individuals at altitudes of 7,000 feet (<u>macraxina</u>) or found on exposed outcrops with sotol, <u>Agave</u> , mesquite, and <u>Acacia</u> (<u>oreuttii</u>).
C	<u>Coryphantha organensis</u>	Organ Mountain pincushion (Cactaceae)	SE	Found on the Needles, in Dripping Springs, and Fillmore Canyon, Organ Mountains on public land and the military reservation.	Occurs on gravelly west-facing mountain slopes at 7,300 ft.
C	<u>Coryphantha scheeri</u> all varieties	Scheer's pincushion (Cactaceae)	SE	Widespread but extremely rare in southern New Mexico.	Occurs on open plains and flats, often in alluvial soils from 3,000 to 5,000 feet.
C	<u>Coryphantha sandbergii</u>	Sandberg's pincushion (Cactaceae)	SE	Found on the east slope of the San Andres Mountains.	Occurs on rocky limestone hillsides between 6,000 and 7,500 feet.
C	<u>Coryphantha sneedii</u> var. <u>sneedii</u>	Sneed's pincushion (Cactaceae)	FL/T/SE	Collected in Anthony Gap, Franklin Mountains on the military reservation.	Occurs on limestone hills on south-, and west-facing slopes with sotol, creosotebush, sumac, and <u>Dailea</u> between 4,300 and 5,400 feet.
PF	<u>Dailea pulchra</u>	None (Fabaceae)	SR	Found in Guadalupe Canyon, Guadalupe Mountains.	Found on rocky knolls.

APPENDIX L-1 (Continued)
**THREATENED, ENDANGERED, AND SENSITIVE PLANT SPECIES
 POTENTIALLY OCCURRING ON PUBLIC LAND**

Plant Persistence ^b	Scientific Name	Common Name (Family)	Status ^c	Occurrences in the Resource Area	Habitat
PF	<u>Delphinium occidentale</u> var. <u>quercicola</u>	Dunceap larkspur (Ranunculaceae)	SR	Found in the Pinos Altos Mountains, Gila National Forest.	Growing in dry soils among scrub oak thickets.
PF	<u>Draba stanleyi</u>	Stanley's Whitlow- grass (Brassicaceae)	SR	Found on Little Mountain, near Las Cruces (Tortugas Mountain) and Organ Peak, Organ Mountains on the military reservation.	Occurs in mountainous regions; igneous crevices and boulders.
C	<u>Echinocereus fasciculatus</u>	Hedgehog cactus (Cactaceae)	SE	Found in the Peloncillo and Big Hatchet Mountains.	Occurs in the foothills and dry desert mountains.
AF	<u>Eriogonum densum</u>	Woolly buckwheat (Polygonaceae)	SR	Collected or found near Bayard and Santa Rita on private land, and on Bear Mountain (near Silver City), Gila National Forest.	Seems to occur around disturbed open rocky areas at altitudes of 5,000 to 6,500 feet. May be extinct.
AF	<u>Eustoma exaltatum</u>	Catchfly gentian (Gentianaceae)	SE	Found in the Rio Grande Valley, north of Las Cruces on private land.	Occurs on alkaline, wet meadows in sod saltgrass at 3,500 feet.
PF	<u>Graptopetalum rusbyi</u>	Rusby's stonecrop (Crassulaceae)	SS	Found in Apache Box along Apache Creek.	Occurs along the creek in the shade with ferns and mosses on quartzite and boulders and in open places among rocks in canyons from 2,500 to 5,200 feet.
HS	<u>Haplophyton crooksii</u>	Cockroach plant (Apocynaceae)	SS	Found near Mount Summerford, Dona Ana Mountains, New Mexico State University (College Ranch).	Occurs on south slopes.
PF	<u>Hedoma todensii</u>	Todsen's pennyroyal (Lamiaceae)	FL/ESE	Found on White Sands Missile Range.	Occurs on north- and east-facing slopes in gravelly gypsaceous limestone soils at 6,600 feet.
PF	<u>Hexalectis spicata</u>	Crested coral root (Orchidaceae)	SE	Found in the Animas Mountains.	Found in open oak groves.
*NF	<u>Hymenoxys olivacea</u>	Olivaceous bitterweed (Asteraceae)	SR	Found in the Pinos Altos Mountains on private land.	Occurs in mountainous regions.

APPENDIX L-1 (Continued)
**THREATENED, ENDANGERED, AND SENSITIVE PLANT SPECIES
 POTENTIALLY OCCURRING ON PUBLIC LAND**

Plant Persistence ^{b/}	Scientific Name	Common Name (Family)	Status/ ^{c/}	Occurrences in the Resource Area	Habitat
PF	<u>Hymenoxys vasseyi</u>	Vasey's bitterweed (Asteraceae)	SS	Found in the Organ Mountains	Occurs on dry hillsides from 4,500 to 6,500 feet.
PF	<u>Jatropha macrocarpa</u>	None (Euphorbiaceae)	SS	Found in Mahoney Park, Florida Mountains.	Found growing near a sandy arroyo in flat open country with sumac, Indian paintbrush, fourwing saltbush, and creosotebush.
AF	<u>Limosella pubiflora</u>	None (Scrophulariaceae)	SS	Found in the Animas Valley.	Occurs in and around temporary puddles.
C	<u>Mammillaria viridiflora</u>	Green-flowered pincushion cactus (Cactaceae)	SE	Collected or found in the Burro Mountains and Bear Mountain, Gila National Forest, Deadman Canyon on private land, and Skeleton Canyon, Peloncillo Mountains, Coronado National Forest.	Found on north-facing granite slopes and on rhyolite tuff and dry slopes in arid grasslands or along margins of desert from 4,500 to 6,500 feet.
C	<u>Mammillaria wrightii</u> var. <u>wilcoxii</u>	Wilcox pincushion (Cactaceae)	SE	Found in Animas and Peloncillo Mountains.	Occurs on rocky or gravelly slopes and canyons from 3,000 to 5,000 feet.
C	<u>Mammillaria wrightii</u> var. <u>wrightii</u>	Wright's pincushion (Cactaceae)	SE	Found in Dona Ana County and near Silver City.	Occurs on gravelly or sandy hills or plains in desert grassland to pinyon-juniper from 3,000 to 7,000 feet.
PF	<u>Marah gilensis</u>	Gila man-root (Cucurbitaceae)	SR	Found in the Gila River bottom.	Occurs on sandy soils near streams often in shaded areas from 4,000 to 5,000 feet.
PF	<u>Metastelma arizonicum</u>	None (Asteraceae)	SR	Found in Guadalupe Canyon, Guadalupe Mountains.	Occurs on steep southwest-facing slopes.
C	<u>Neolloydia intertexta</u>	Visnagia (Cactaceae)	SE	Found in the Franklin and Tres Hermanas Mountains.	Occurs on the foothills of desert mountains.
PF	<u>Oenothera organensis</u>	Organ Mountain evening primrose (Onagraceae)	C-2/SE	Found in numerous canyons and on various peaks in the Organ Mountains mostly on the military reservation and public land.	Occurs in wet areas forming dense mats and in steep rocky canyons from 6,000 to 7,000 feet.

APPENDIX (Continued)
 THREATENED, ENDANGERED, AND SENSITIVE PLANT SPECIES
 POTENTIALLY OCCURRING ON PUBLIC LAND

Plant Persistence ^{b/}	Scientific Name	Common Name (Family)	Status ^{d/}	Occurrences in the Resource Area	Habitat
C	<u>Opuntia arenaria</u>	Sand prickly pear (Cactaceae)	C-2/SE	Found along the Rio Grande Valley on public and private lands and around the Franklin Mountains.	Grows on dunes and inter-dune sandy areas in small (5-12 plants) patches with creosotebush and mesquite or on sandy floodplains in arroyos at 3,600 feet.
C	<u>Pediocactus papyracanthus</u>	Grama grass cactus (Cactaceae)	C-2/SE	Collected around Pinos Altos near Silver City on private land.	Occurs on sandy soil on open slopes or flats in grassland; often among pinyon and juniper from 3,500 to 7,500 feet.
PF	<u>Pediomelum trinervatum</u>	Three-nerved scurfpea (Fabaceae)	C-2/SR	Found south of Hachita Valley.	Occurs on sand mesas at 5,000 feet.
PF	<u>Penstemon alamosensis</u>	Alamo penstemon (Scrophulariaceae)	C-2/SE	Collected on Black Mountain, San Andres Mountains on the military reservation.	Grows in crevices and ledges in limestone cliffs and along canyon bottoms at 5,000 feet.
PF	<u>Penstemon lanceolatus</u>	Scarlet-tube beard-tongue (Scrophulariaceae)	SR	Found in the Sierra de Las Uvas, Florida Mountains, Cooke's Range, Alamo Hueco Mountains, and Pyramid Mountains.	Found associated with creosotebush, snakeweed, and juniper on rocky soil in draws; on east-facing slopes with ocotillo, Wright siltassel, and Apache plume; scattered on southwest-facing slopes under mountain mahogany and oak and in open areas with various grasses; also on rocky canyons of pinyon-juniper or in pine woodlands.
PF	<u>Penstemon linarioides</u> ssp. <u>maguirei</u>	Maguire's penstemon (Scrophulariaceae)	SR	Found in the Lower Gila River Valley.	Very rare.

APPENDIX L-1 (Continued)
THREATENED, ENDANGERED, AND SENSITIVE PLANT SPECIES
POTENTIALLY OCCURRING ON PUBLIC LAND

Plant Persistence ^b	Scientific Name	Common Name (Family)	Status ^c	Occurrences in the Resource Area	Habitat
PF	<u>Penstemon superbus</u>	Superb penstemon (Scrophulariaceae)	SS	Found northwest of Silver City and in the Peloncillo Mountains; on private land in Guadalupe Canyon, Guadalupe Mountains.	Found in the gravels of canyon bottoms and in talus gravels below some cliffs; also occurred in an open arroyo bottom at 4,770 feet. Plants are commonly grazed.
PF	<u>Perityle cernua</u>	Nodding cliff daisy (Asteraceae)	C-2/SE	Collected in various canyons in the Organ Mountains on the military reservation.	Occurs in crevices and overhangs on northeast-facing and vertical monzonite and granite cliff faces at elevations of 5,800 to 7,200 feet. Areas receive no sunlight or less than 2 hours per day.
PF	<u>Perityle lemmonii</u>	Lemmon's rock daisy (Asteraceae)	SS	Found in the Big Hatchet Mountains.	Occurs on limestone cliffs at elevations of 5,300 to 5,600 feet. Is a peripheral species from Mexico, Texas, and Arizona.
PF	<u>Perityle staurophylla</u> var. <u>homiflora</u>	San Andres rock daisy (Asteraceae)	SS	Collected on Quartzite Mountain in San Andres Mountains on the military reservation.	Found on east-facing limestone cliffs at 5,800 feet and in the pinyon-juniper zone.
FN	<u>Phanerophlebia auriculata</u>	Mexican eared fern (Dryopteridaceae)	SR	Found near Dripping Springs, Organ Mountains on public land.	Occurs in cool, shady, moist areas on north-facing cliffs. Northern most location in the United States.
PF	<u>Plummera ambigens</u>	Pinaleno plummera (Asteraceae)	SS	Found in Maverick Spring Canyon, Peloncillo Mountains on private land.	Occurs on sandy gravels in canyon bottoms.
PF	<u>Polygala rimulicola</u> var. <u>mesalerorum</u>	Mescalero milkwort (Polygalaceae)	C-2/SE	Found in the San Andres Mountains on the military reservation.	Occurs in cracks of sandy, limestone cliffs at 5,100 feet.
AG	<u>Puccinellia parishii</u>	Parish's alkali grass (Poaceae)	C-1/SE	Found in Grant County near Faywood Hot Springs.	Occurs on moist or marshy ground that is often alkaline.
PF	<u>Salvia summa</u>	Supreme sage (Lamiaceae)	SS	Found on Rattlesnake Ridge, Organ Mountains on the military reservation.	Occurs at the base of limestone outcrops on a ridge at 5,500 feet.
PF	<u>Scrophularia laevis</u>	Organ Mountain figwort (Scrophulariaceae)	SS	Found and collected on the Organ Needle and Organ Peak, Organ Mountains; on public land and the military reservation.	Found on the highest peak in the Organ Mountains and on a moist, shaded slope high on Organ Peak (7,200 feet).

APPENDIX (Continued)
THREATENED, ENDANGERED, AND SENSITIVE PLANT SPECIES
POTENTIALLY OCCURRING ON PUBLIC LAND

Plant Persistence ^{b/}	Scientific Name	Common Name (Family)	Status ^{c/}	Occurrences in the Resource Area	Habitat
PF	<u>Scrophularia macrantha</u>	Mimbres figwort (Scrophulariaceae)	C-1/SE	Found on Cooke's Peak, Cooke's Range and on private land in Grant County (San Lorenzo).	Found among rock debris in a cliff area facing northeast among pinyon, juniper, Arizona cypress, and ash, in a wet spot. Few plants present. Also found on a rocky ledge near the summit of a mountain in full or partial shade; from 6,500 to 7,500 feet.
AF	<u>Sicyos glaber</u>	Smooth cucumber (Cucurbitaceae)	SS	Collected in various locations on the west side of the Organ Mountains; on the military reservation and on public land.	Occurs in rocky soils on open slopes and in canyons on the west face of the Organ Mountains from 5,000 to 6,000 feet.
PF	<u>Silene plankii</u>	Campion; Plank's catchfly (Caryophyllaceae)	SS	Collected in the Organ Mountains on the military reservation.	Found on vertical east- and west-facing heavily shaded igneous cliffs in canyons and in niches receiving less than 2 hours sunlight per day between 5,800 and 8,000 feet.
*NF	<u>Silene wrightii</u>	Wright's catchfly (Caryophyllaceae)	SS	Found and collected near Kneeling Nun on private land and in the Cooke's Range.	Occurs in crevices of rocks and on sandstone ledges on north-facing ridges at 7,450 feet.
AF	<u>Sphaeralcea procera</u>	Porter's globemallow (Malvaceae)	SR	Collected in Chandler Draw northeast of Deming, New Mexico.	Occurs in sandy arroyos.
PF	<u>Talinum humile</u>	Pinos Altos flame flower (Portulacaceae)	C-2/SE	Found near the Kneeling Nun vista on Forest Service lands.	Occurs on rocky south-facing slopes in pinyon/juniper and <u>Agave</u> types from 6,000 to 8,000 feet.
PF	<u>Talinum longipes</u>	Long-stemmed flame flower (Portulacaceae)	SS	Collected on Tortugas Mountain, Dona Ana County.	Occurs on dry hills at low elevations.

**APPENDIX L-1 (Concluded)
THREATENED, ENDANGERED, AND SENSITIVE PLANT SPECIES
POTENTIALLY OCCURRING ON PUBLIC LAND**

Plant Persistence ^{b/}	Scientific Name	Common Name (Family)	Status ^{d/}	Occurrences in the Resource Area	Habitat
S	<i>Vauquehlinia californica</i> var. <i>pauciflora</i>	Few-flowered rosewood (Rosaceae)	C-2/SE	Found in the Peloncillo Mountains, Coronado National Forest near Guadalupe Canyon.	Occurs on limestone with juniper, sumac, Wright siltkassel and fendlerbush from 4,100 to 6,100 feet.
S	<i>Yucca shottii</i>	Yucca (Liliaceae)	SR	Found in the Peloncillo Mountains.	Mountainous regions.

Sources: Spellenburg, 1978; Spellenburg, 1979; New Mexico State Forestry, 1991.

Notes: a/ To ensure complete coverage of all threatened, endangered, or sensitive plant species, consideration was given to all species on public land or within 1 mile of public land.

b/ Plant Persistence:

* - Information pertaining to plant persistence was not available.

- AG - Annual Grass
- PG - Perennial Grass
- AF - Annual Forb
- BF - Biannual Forb
- PF - Perennial Forb
- NF - Native Forb
- HS - Half Shrub
- S - Shrub
- T - Tree
- FN - Fern
- C - Cactus

c/ Status:

- C - Candidate (species designated as "candidate species" by the Fish and Wildlife Service)
 - 1 - Enough information to list
 - 2 - Not enough information to list
- FL/E - Federally Listed/Endangered
- FL/T - Federally Listed/Threatened
- PSE - Proposed for the State Endangered List
- SE - State Endangered
- SR - State Review List
- SS - State Sensitive (species selected by the New Mexico State Forestry as a special concern element)

APPENDIX L-2
SPECIAL STATUS ANIMALS

COMMON NAME	SCIENTIFIC NAME	STATUS	COUNTY*	HABITAT
<u>Amphibians</u>				
Colorado River Toad	<u>Bufo alvarius</u>	FC2 SE2	H	Mesquite, creosote, and other shrubs
Lowland leopard frog	<u>Rana yavapaiensis</u>	FC2	H	Specific habitat association unknown at present
<u>Birds</u>				
Olivaceous cormorant	<u>Phalacrocorax olivaceus</u>	SE2	D G H	Generally found on larger bodies of water, rivers, and possibly playas
Mississippi kite	<u>Ictinia mississippiensis</u>	SE2	D	Riparian woodlands
Ferruginous hawk	<u>Buteo regalis</u>	FC2	D G H L	Open grassland or grassland/shrub
Common blackhawk	<u>Buteogallus anthracinus</u>	SE2	G H L	Riparian woodlands
Bald eagle	<u>Haliaeetus leucocephalus</u>	FE SE2	D L G	Habitat associated with water but there are some dry land areas where they occur
Peregrine falcon	<u>Falco peregrinus</u>	FE SE1		Cliffs in woodland/ forest types
Wild turkey (Gould's)	<u>Meleagris gallopavo mexicana</u>	SE2	H	Mountainous areas where large oaks predominate
White faced ibis	<u>Plegadis chihi</u>	FC2	H	Marsh playas, irrigated land
Whooping crane	<u>Grus americana</u>	FE SE2	D L	Agricultural fields and valley pastures for feeding, roosting near water
Western snowy plover	<u>Charadrius nivosus</u>	FC2	H	Alkali and salt flats
Long billed curlew	<u>Numenius americanus</u>	FC2	D G H L	Plains, rangelands and shorelines of lakes and marshs
Common ground dove	<u>Columbiana passerina</u>	SE1	D H	Agricultural areas and undeveloped shrubland near these areas
Broad billed hummingbird	<u>Cyanothus latirostris</u>	SE2	H	Riparian woodlands at low elevations
Costas hummingbird	<u>Calypte costae</u>	SE2	H	Arid sites near agricultural areas.
Lucifers hummingbird	<u>Calothorax lucifer</u>	SE2	H	Slopes and canyons in arid montane areas
Violet crowned hummingbird	<u>Amazilia violiceps</u>	SE2	H	Riparian woodlands at moderate elevations
White eared hummingbird	<u>Hylocharis leucotis</u>	SE2	H	Pine/oak woodland and adjacent riparian areas

APPENDIX L-2 (continued)
SPECIAL STATUS ANIMALS

COMMON NAME	SCIENTIFIC NAME	STATUS	COUNTY*	HABITAT
Elegant torgon	<u>Torgon elegans</u>	SE1	H	Broadleaf woodlands
Gila woodpecker	<u>Melanerpes uropygialis</u>	SE2	G H	Low elevation woodlands along stream courses
Thick billed kingbird	<u>Tyrannus crassirostris</u>	SE2	H	Riparian areas
Bells vireo	<u>Vireo belli</u>	SE2	D G H L	Dense shrubland or woodland along lowland streams
Gray vireo	<u>Vireo vicinior</u>	SE2	D G H L	Open woodlands and shrublands
Varied bunting	<u>Passerina versicolor</u>	SE2	H	Dense mesquite stands in canyon bottoms
Baird's sparrow	<u>Ammodramus bairdii</u>	SE2	D H L	Desert grasslands
Yellow eyed junco	<u>Junco phaeonotus</u>	SE2	H	Pine/oak woodland and lower slopes in winter
McCown's longspur	<u>Calcarius mccownii</u>	SE2	D G H L	Habitat associated with desert grassland
Abert's towhee	<u>Pipilo aberti</u>	SE2	G H	Riparian areas
Northern beardless tyrannulet	<u>Camplostoma imberbe</u>	SE1	H	Dense lowland mesquite stands
Buff colored nightjar	<u>Caprimulgus ridgwavi</u>	SE1	H	Arid shrublands and woodlands
<u>Fish</u>				
Loachminnow	<u>Tiaroga cobitis</u>	FT SE2	G	Riffle areas with moderate to rapid water velocities.
Spikedace	<u>Meda fulgida</u>	FT SE2	G H	Cobble bottomed stream margins in winter and areas with sand and gravel in main channel
<u>Mammals</u>				
Colorado chipmunk (Organ Mountains)	<u>Eutamias quadrivittatus</u>	FC2 SE2	D	Pineoak-juniper woodlands
White sided jackrabbit	<u>Lepus callotis</u>	FC2 SE1	H	Desert grassland
Southern pocket gopher	<u>Thomomys umbrinus</u>	SE2	H	Montane area above 6000 ft. but may occur in canyon bottoms down to 4500 ft.
Desert bighorn sheep	<u>Ovis canadensis mexicana</u>	SE1	D H	Open arid, rocky mountains

APPENDIX L-2 (Concluded)
SPECIAL STATUS ANIMALS

COMMON NAME	SCIENTIFIC NAME	STATUS	COUNTY	HABITAT
Gray wolf (Mexican race)	<u>Canis lupus baileyi</u>	FE SE1		Mountain woodlands
Guadalupe pocket gopher	<u>Thomomys quadrupiensis</u>	FC2 SE2	H	
California leafnosed bat	<u>Macrotus californicus</u>	FC2	H	Caves and old mine shafts
Greater western mastiff bat	<u>Eumops perotis</u>	FC	H	Cliffs, trees and abandoned buildings
Mexican longnosed bat	<u>Leptonycteris nivalis</u>	FC2 SE2	H	Caves and old mine tunnels
Occult little brown bat	<u>Myotis lucifugus occulti</u>	FC2	H	Hollow trees, caves, old mines
Sanborns longnosed bat	<u>Leptonycteris sanborni</u>	FE SE2	H	Caves and old mine tunnels
Southern yellow bat	<u>Nycteris ega</u>	SE2	H	Riparian woodlands
Spotted bat	<u>Euderma maculatus</u>	FC	D G H L	Open arid areas
<u>Reptiles</u>				
Mexican garter snake	<u>Thomophis eques</u>	FC2 SE2	G H	Pine/oak woodlands and grasslands with mesquite
Narrowhead gartersnake	<u>Thomphis rufipunctatus</u>	FC2 SE2	G H	Riparian areas along stream courses
Green ratsnake	<u>Elaphe triaspis</u>	SE2	G H	rocky canyon bottoms near streams or intermittent water
Gila monster	<u>Heloderma suspectum</u>	SE1	G H	Lower mountain slopes and outwash plains
Bunchgrass lizard	<u>Sceloporus scularis</u>	SE2	H	Intermountain valley grasslands
Ridgenose rattlesnake	<u>Crotalus willardi</u>	FT SE1	H	Canyon bottoms in montane areas
Mountain skink	<u>Eumeces callicephalus</u>	SE2	H	Riparian areas
Giant spotted whiptails	<u>Cnemidophorus burti</u>	FC SE2	H	Canyons and arroyos in and near mountains mesas
Gray checkered whiptail	<u>Cnemidophorus dixonii</u>	FC2 SE2	H	Desert grassland
Texas horned lizard	<u>Phrynosoma cornutum</u>	FC	D	Desert grass/shrubland

Source: BLM Files 1990.

Notes: *D = Doña Ana; G = Grant; H = Hidalgo; L = Luna