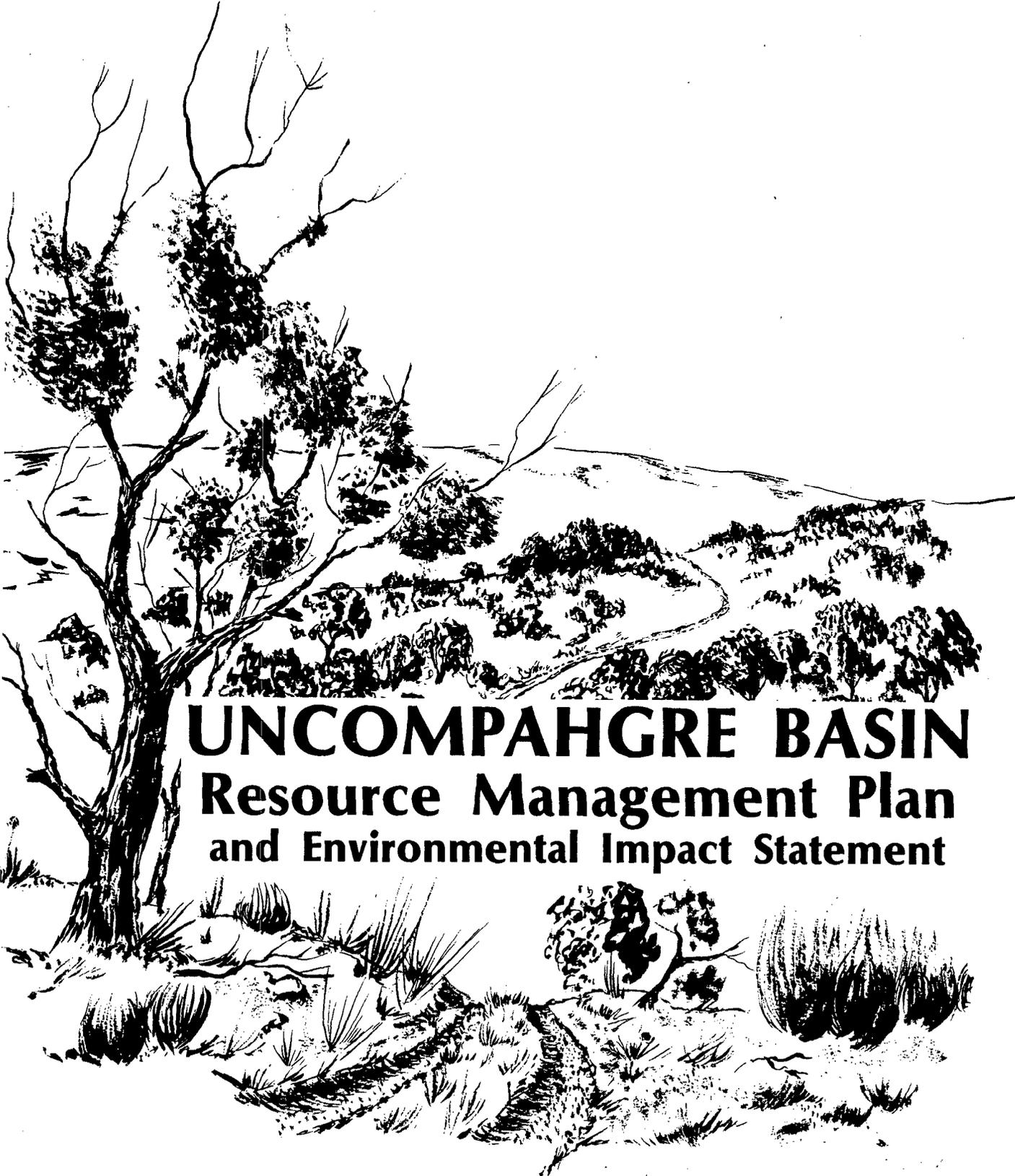


Draft  
June 1987



**UNCOMPAHGRE BASIN**  
**Resource Management Plan**  
**and Environmental Impact Statement**

U.S. Department of the Interior  
Bureau of Land Management  
Montrose District, Colorado  
Uncompahgre Basin Resource Area



# United States Department of the Interior

BUREAU OF LAND MANAGEMENT  
Montrose District Office  
2465 South Townsend Avenue  
Montrose, Colorado 81401

IN REPLY  
REFER TO:

Dear Reader:

Enclosed for your review and comment is the Draft Uncompahgre Basin Resource Management Plan/Environmental Impact Statement (RMP/EIS) and the Draft Uncompahgre Basin Planning Area Wilderness Technical Supplement (WTS).

The Draft RMP/EIS presents four multiple-use management alternatives for the public lands within the Uncompahgre Basin Planning Area, and analyzes the environmental impacts of implementing each alternative. The Draft WTS presents four multiple-use alternatives specifically for the three Wilderness Study Areas (WSAs) within the Planning Area, and analyzes the environmental impacts of implementing each alternative. Related documents, including a Coal Unsuitability Report and Draft Oil and Gas Technical Report, are available for review at the Uncompahgre Basin Resource Area Office in Montrose, Colorado.

You are invited to make written or oral comments on these documents. Public hearings to receive oral comments on the Draft RMP/EIS and Draft WTS are scheduled as follows:

<u>Date and Time</u>	<u>City</u>	<u>Location</u>
September 22, 1987 7:30 p.m. to 9:30 p.m.	Hotchkiss, Colorado	Memorial Hall Main Street at 1st Street
September 24, 1987 7:30 p.m. to 9:30 p.m.	Lakewood, Colorado	Ramada Inn Foothills 11595 West 6th Avenue
September 29, 1987 7:30 p.m. to 9:30 p.m.	Montrose, Colorado	BLM District Office 2465 South Townsend Avenue

An informal Open House session will be held prior to each hearing to give you an opportunity to meet with BLM representatives to discuss and ask questions about the Draft RMP/EIS and WTS. Open House sessions will run from 6:30 p.m. to 7:30 p.m.

In order to be considered, your written comments must be received by close of business (4:30 p.m.) on Thursday, November 5, 1987. Your name and complete mailing address should be on all written comments, including any copies of oral testimony that you may make available to us.

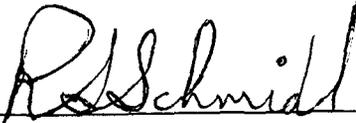
Please address your written comments or questions to Robert E. Vecchia, RMP Team Leader, Bureau of Land Management, Uncompahgre Basin Resource Area, 2505 South Townsend Avenue, Montrose, Colorado 81401.

Sincerely yours,

Robert S. Schmidt  
Montrose District Manager

**DRAFT  
UNCOMPAHGRE BASIN  
RESOURCE MANAGEMENT PLAN  
AND  
ENVIRONMENTAL IMPACT STATEMENT  
JUNE 1987**

Prepared by:  
United States Department of the Interior  
Bureau of Land Management  
Colorado State Office  
Montrose District  
Uncompahgre Basin Resource Area

  
District Manager, Montrose

  
State Director, Colorado

**UNCOMPAHGRE BASIN  
RESOURCE MANAGEMENT PLAN  
AND  
ENVIRONMENTAL IMPACT STATEMENT**

Draft (X)      Final ( )

Lead Agency: The United States Department of the Interior, Bureau of Land Management.

1. Type of Action: Administrative (X)      Legislative ( )
2. Abstract: This Draft Resource Management Plan and Environmental Impact Statement describes and analyzes four alternatives for managing the public lands and resources within the Uncompahgre Basin Planning Area in Colorado. These alternatives are: (1) the Continuation of Current Management (No Action) Alternative, (2) the Production Alternative, (3) the Conservation Alternative, and (4) the Preferred Alternative (Proposed Plan).
3. Comments have been requested from the following: See Chapter Five for distribution list.
4. For further information, contact: Robert E. Vecchia, RMP Team Leader, Bureau of Land Management, Uncompahgre Basin Resource Area, 2505 South Townsend Avenue, Montrose, Colorado 81401; telephone 303-249-7791, commercial, or FTS 322-7300.
5. Comments on the Draft Resource Management Plan and Environmental Impact Statement must be received no later than: Thursday, November 5, 1987.

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## **MAP LIST**

Conservation Alternative

Current Management Alternative

Production Alternative

Preferred Alternative

## **SUMMARY**

# SUMMARY

This Draft Resource Management Plan and Environmental Impact Statement (RMP/EIS) identifies and analyzes the options for future management of the public lands in the Uncompahgre Basin planning area portion of the Uncompahgre Basin Resource Area in west-central Colorado. The planning area encompasses a total of approximately 1.38 million acres in the Bureau of Land Management's (BLM) Montrose District. The BLM has administrative responsibility for the public lands and resources on 483,077 surface acres and 755,923 acres of mineral estate within the planning area.

The resource management plan is being prepared using the BLM's planning regulations issued under the authority of the Federal Land Policy and Management Act of 1976.

## ISSUE IDENTIFICATION

The planning process for this RMP/EIS began in August 1983 with issue identification. Public meetings to determine the scope of the document and to identify public concerns that should be addressed were held in Delta, Hotchkiss, and Montrose, Colorado. Written comments were also solicited. The issues identified by the public and the BLM during this initial scoping process, and which are addressed in the RMP, are:

**Coal.** Identification of areas acceptable for further coal leasing consideration, with attention given to potential conflicts with water needs and/or water rights, and other potential development problems and management conflicts.

**Salinity.** Identification of major source areas and uses contributing to the salinity problem in the Colorado River drainage, and development of measures to curtail the salinity problem.

**Forestry.** Identification of woodlands which would be managed predominantly for production of either woodland products (fuelwood) or forage.

**Recreation.** Determination of the compatibility of the proposed Storm King Peak ski area development with wildlife habitat and timber and coal production.

**Off-Road Vehicles.** Identification and designation of ORV use areas, with consideration given to current recreation activities and recommended restrictions.

**Wilderness.** Determination as to whether any or all of the three Wilderness Study Areas (WSAs) within the planning area should be recommended as suitable

for wilderness designation, and identification of alternative management for those areas not recommended as suitable.

**Lands.** Identification of public lands that are suitable for disposal and public lands that should be retained in public ownership; also, identification of non-federal lands that would best serve the public needs if in public ownership.

## MANAGEMENT ALTERNATIVES

Four multiple-use alternatives were developed in this RMP/EIS. Each alternative proposes different solutions to the identified issues and describes the different management options available to the BLM for the Uncompahgre Basin planning area. Each of the alternatives is a complete, reasonable, and implementable plan which provides a framework for public land management and resource allocation specific to the alternative's management objective.

Initially, three alternatives were analyzed. They are (1) the Continuation of Current Management Alternative, (2) the Production Alternative, and (3) the Conservation Alternative. Each alternative was described, and the potential impacts of its management on the environment were analyzed. Based on this analysis, the BLM's policy and goals, and the varying levels of responsiveness to the issues identified during the scoping process, a Preferred Alternative was developed and its environmental consequences were identified.

The Continuation of Current Management Alternative is the No Action Alternative required by the Council on Environmental Quality (CEQ). The Production and Conservation Alternatives explore a reasonable range of management options and philosophies. The Preferred Alternative balances competing demands by providing products and services while protecting important and sensitive environmental values.

The alternatives are described in Chapter Three and the anticipated environmental consequences of each alternative are described in Chapter Four. The following summarizes the key points of each alternative.

## CONTINUATION OF CURRENT MANAGEMENT ALTERNATIVE

The Continuation of Current Management Alternative would manage resources using current guidance. Any new proposals would be consistent with current management plans.

## SUMMARY

Existing air quality would be maintained. All actions would comply with air quality standards and regulations.

Existing coal leases on 26,663 acres would be continued, and an additional 20,737 acres of federal coal estate in the Paonia/Somerset and Cimarron Ridge coal areas would be identified as acceptable for further coal leasing consideration. Approximately 62,597 acres would be identified as unacceptable for further coal leasing consideration.

Leasing of federal oil, gas, and geothermal estate would be allowed on 445,364 acres with standard lease terms and on 229,950 acres with seasonal stipulations. Seasonal stipulations would also apply to seismic activities. Leasing would be considered on an additional 31,200 acres on a case-by-case basis. A no surface occupancy stipulation would be required on 220 acres.

The existing withdrawals closing 59,520 acres of federal mineral estate to mineral entry and location would be retained; mineral entry and location would be allowed on the remaining federal mineral estate (615,892 acres).

Disposal of mineral materials would be allowed on 480,805 acres of public land with federal mineral estate. Disposal of mineral materials on the 59,250 acres presently withdrawn would require review by the agency holding the withdrawal. No disposal of mineral materials would be allowed on 220 acres.

Water quality and erosion conditions would be inventoried and monitored. All actions under this alternative would comply with water quality standards and regulations. Intensive management and development to control salinity would continue on the Elephant Skin Wash watershed (2,370 acres). Mitigation to minimize erosion and water quality deterioration would be required in plans for all surface-disturbing activities. Maintenance of existing projects would have priority over new projects.

Vegetation conditions on 3,500 acres of riparian zones would be improved through decreased livestock use. Riparian zones in the remainder of the planning area would be maintained in their present condition.

Measures designed to protect threatened and endangered species would be required in plans for all surface-disturbing activities. Habitat suitable for bald eagles and river otters would be maintained in the Gunnison Gorge area.

The Gunnison Forks area would continue to be managed for fisheries and wildlife habitat benefits. Habitat in the Gunnison Gorge would be managed for approximately 150 bighorn sheep. Browse conditions on crucial deer and elk winter ranges would be improved.

Livestock grazing use would be in accordance with the Uncompahgre Basin Rangeland Program Summary (RPS) and its updates. Public lands would be managed as "I"

category (353,068 acres), "M" category (65,497 acres), and "C" category (38,900 acres) grazing allotments; approximately 25,612 acres would remain unallotted for grazing use. Projects and land treatments necessary to meet allotment plan objectives would be authorized with restrictions to protect other resource needs.

Future forage increases or decreases would be divided evenly between wildlife and livestock.

Commercial forests on 3,482 acres (estimated allowable harvest of 257 MBF/year) and suitable woodlands on 6,542 acres (estimated allowable harvest of 327 cords/year) would be managed for sustained yield production. Seasonal restrictions would be determined on a case-by-case basis.

The Gunnison Gorge Special Recreation Management Area (SRMA), totalling 61,067 acres, would be managed for motorized and non-motorized recreation opportunities according to the existing recreation area management plan (RAMP). Whitewater boating in the Gunnison Gorge would be managed for a maximum of ten group encounters per day with commercial overnight trips limited to two per day.

The Needle Rock area would continue to be managed as an Outstanding Natural Area (ONA).

The remainder of the planning area would be managed for extensive recreation use.

The majority of the planning area (444,521 acres) would be managed as open to off-road vehicle (ORV) use; 21,038 acres would be closed. Vehicle use would be limited to designated roads and trails on 17,510 acres.

Cultural resources would be protected from surface-disturbing activities. Sites in the Gunnison Gorge SRMA would be stabilized, restored, and interpreted.

The planning area would be managed under current visual resource management (VRM) classifications, with 80 acres under VRM Class I, 64,800 acres under VRM Class II, 46,580 acres under VRM Class III, and 371,617 acres under VRM Class IV.

The Camel Back WSA, Adobe Badlands WSA, and Gunnison Gorge WSA (a total of 41,865 acres) would be recommended as non-suitable for designation as wilderness.

Public lands on 421,930 acres would be open to development of major utility facilities, 40,029 acres would be open to but not preferred for utility development, and 21,118 acres would be closed to utility development.

Nineteen (19) tracts of public land (830.25 acres) would be considered suitable for disposal. Six tracts of non-federal lands in the Gunnison Gorge SRMA (2,200 acres) would be considered for acquisition. Other opportunities for disposal and acquisition of lands would be considered if they conform with current land use plans.

Public access would be acquired into 15 public land areas.

All public lands in the planning area (483,077 acres) would be managed for full and complete fire suppression.

## PRODUCTION ALTERNATIVE

The Production Alternative would promote the development, production, and transportation of resources providing and producing minerals, food, timber, and fiber. Productive utilization of resources would have priority over conservation of resources.

Existing air quality would be maintained. All actions would comply with air quality standards and regulations.

Existing coal leases on 26,663 acres would be continued. Approximately 83,334 acres of federal coal estate in the Paonia/Somerset, Cimarron Ridge, and Bookcliffs coal areas would be identified as acceptable for further coal leasing consideration. Stipulations on leasing would be minimal. There are an additional 1,756 acres of federal coal reserves under private surface and within the boundary of the Gunnison National Forest

Leasing of federal oil, gas, and geothermal estate would be allowed on 706,654 acres with standard lease terms. The Needle Rock ONA (80 acres) would be closed to surface occupancy.

The existing withdrawals closing 59,250 acres of federal mineral estate to mineral entry and location would be recommended for revocation. The entire federal mineral estate (675,142 acres) would be open to entry and location of locatable minerals.

Disposal of mineral materials would be allowed on 480,945 acres of public land with federal mineral estate. The Needle Rock ONA (80 acres) would be closed to disposal of mineral materials.

Water quality and erosion conditions would be inventoried and monitored. All actions under this alternative would comply with water quality standards and regulations. No public lands would be intensively managed for salinity and/or erosion control. Projects designed to control salinity on 7,810 acres and to reduce runoff and control erosion on 27,430 acres would be developed if they would be compatible with wildlife habitat, livestock grazing, and forest management.

Riparian zones throughout the planning area would be maintained in their present condition if such management does not interfere with other resource needs and uses.

Threatened and endangered species would be protected only to the extent required by law or regulation.

The Gunnison Forks Habitat Management Plan (HMP) would be revised to restrict recreation use and to allow livestock grazing and oil and gas leasing. Habitat in the Gunnison Gorge would be managed for approximately 150 bighorn sheep. Bighorn sheep could be introduced into the Camel Back area if livestock forage needs would not be impacted. Big game forage allocations would remain at present levels. Habitat management objectives and projects could be maintained and implemented if livestock forage and forestry needs are not impacted.

Public lands would be managed as "I" category (353,088 acres), "M" category (65,497 acres) and "C" category (58,695 acres) grazing allotments; approximately 5,817 acres would be unallotted for grazing use. Projects and land treatments necessary to meet allotment plan objectives would be implemented with minimal restrictions. Grazing use would be restricted on 9,201 acres of adobe soils during the spring period to improve range condition.

All future forage increases would be allocated to livestock.

Commercial forests on 2,001 acres (estimated allowable harvest of 148 MBF/year) and suitable woodlands on 7,072 acres (estimated allowable harvest of 353 cords/year) would be managed for sustained yield production.

The inner Gunnison Gorge (21,038 acres) would be intensively managed for recreation opportunities. White-water boating in the Gunnison Gorge would be managed for a maximum of 20 group encounters per day with overnight trips limited to eight per day (one-half commercial and one-half private).

The Needle Rock area would continue to be managed as an ONA. The lower Gunnison River, below the Escalante Bridge, would be managed as an SRMA.

The remainder of the planning area would be managed for extensive recreation use.

Approximately 208,952 acres would be managed as open to ORV use; 35 acres would be closed. Vehicle use would be limited to designated roads and trails yearlong on 49,840 acres; there would be seasonal vehicle-use limitations on 224,250 acres.

Cultural resources would be protected from surface-disturbing activities as required by law. A Class III inventory would be conducted on 2,738 acres west of Montrose and Olathe.

The planning area would be managed under current VRM classifications, with 80 acres under VRM Class I, 64,800 acres under VRM Class II, 46,580 acres under VRM Class III, and 371,617 acres under VRM Class IV.

The Camel Back WSA, Adobe Badlands WSA, and Gunnison Gorge WSA (a total of 41,865 acres) would be recommended as non-suitable for designation as wilderness.

## SUMMARY

Public lands on 449,597 acres would be open to development of major utility facilities. Utility development would be excluded on 33,480 acres.

One hundred seventy-one (171) tracts of public land (29,496 acres) would be considered suitable for disposal. A total of 3,640 acres of Colorado Division of Wildlife (DOW) land on the Uncompahgre Plateau and other non-federal lands near Dry Creek and along the lower Gunnison River would be identified for acquisition through exchange opportunities.

Public access would be acquired into 13 public land areas.

Public lands totalling 112,945 acres would be managed for intensive fire suppression; 201,799 acres would be managed for conditional fire suppression. Prescribed fire would be permitted on 168,333 acres.

## CONSERVATION ALTERNATIVE

The Conservation Alternative would conserve and protect resources such as wilderness, cultural sites, wildlife habitats, watersheds, and recreation areas. Conservation of resources would have priority over consumption of resources. Sensitive, unique, and high-value scientific resources would receive the highest level of protective management.

Existing air quality would be maintained. All actions would comply with air quality standards and regulations.

Existing coal leases on 26,663 acres would be continued. Approximately 82,827 acres of federal coal estate in the Paonia/Somerset, Cimarron Ridge, and Bookcliffs coal areas would be identified as acceptable for further coal leasing consideration. There would be restrictions on surface disturbance and/or subsidence on 7,808 acres. A total of 507 acres within the Adobe Badlands WSA would be unsuitable for further coal leasing consideration.

Leasing of federal oil, gas, and geothermal estate would be allowed on 367,488 acres with standard lease terms. There would be a yearlong no surface occupancy stipulation on 29,915 acres, and seasonal stipulations on 267,466 acres. Seasonal stipulations would also apply to seismic activities. Approximately 41,865 acres would be closed to leasing.

The existing withdrawals closing 59,250 acres of federal mineral estate to mineral entry and location would be retained. An additional 39,602 acres would be withdrawn from mineral activity. Mineral entry and location would be allowed on the remaining 576,290 acres of federal mineral estate.

Disposal of mineral materials would be allowed on 396,264 acres of public land with federal mineral estate. Disposal of mineral materials would be subject to seasonal restrictions on 196,700 of these acres, and would require

approval of the withdrawing agency on 98,852 acres. Disposal of mineral materials would not be permitted on 84,761 acres.

Water quality and erosion conditions would be inventoried and monitored. All actions under this alternative would comply with water quality standards and regulations. Approximately 48,195 acres would be intensively managed to control salinity and erosion. Projects and special protective measures would be developed. Projects designed to control salinity and erosion could also be developed on an additional 51,681 acres if they would not conflict with recreation uses, threatened and endangered species, and cultural resources.

Riparian zones on 6,385 acres would be improved through implementation of special protective and restorative measures. Riparian zones in the remainder of the planning area would be maintained in their present condition.

One Area of Critical Environmental Concern (ACEC) and one Research Natural Area (RNA) (a total of 2,272 acres) would be designated to protect threatened and endangered plants and unique plant associations. Measures in addition to the minimal requirements for protection of threatened and endangered species and habitats would be required in plans for all surface-disturbing activities.

The Gunnison Forks area would continue to be managed for fisheries and wildlife habitat benefits. Forage and habitat in the Gunnison Gorge and Camel Back areas would be allocated to and managed for bighorn sheep. Management would be intensive and disturbance would be minimized on all crucial deer and elk winter ranges, elk calving areas (High Park), antelope ranges (Wells Gulch/Cactus Park), sage grouse areas (Fruitland Mesa and Simms Mesa), and in several proposed waterfowl areas. Big game forage allocations would remain at present levels. Aquatic habitat would be intensively managed and improved in seven drainages.

Public lands would be managed as "I" category (350,796 acres), "M" category (65,497 acres), and "C" category (38,433 acres) grazing allotments; approximately 28,351 acres would be unallotted for livestock grazing and all currently unallotted areas would remain unallotted. Projects and land treatments would be restricted on 124,963 acres. Livestock grazing would be eliminated on 3,059 acres and restricted (season of use, percent utilization) on 75,626 acres.

All future forage increases would be allocated to wildlife.

Commercial forests on 2,251 acres (estimated allowable harvest of 166.5 MBF/year) and suitable woodlands on 31,997 acres (estimated allowable harvest of 1,600 cords/year) would be managed for sustained yield production. Seasonal restrictions would be applied on 1,263 acres.

The outer portion of the Gunnison Gorge area (40,792 acres) would be managed for motorized and non-motorized recreation opportunities. The Gunnison Gorge WSA would

## SUMMARY

be managed for wilderness values and whitewater boating opportunities. Boating use would be managed for a maximum of six group encounters per day with overnight trips limited to three per day (one-third commercial and two-thirds private).

The Needle Rock area would continue to be managed as an ONA. The lower Gunnison River, below Escalante Bridge, would be managed as an SRMA. Approximately 8,942 acres of public land north of Delta would be managed as an SRMA for ORV use. The Storm King area (1,520 acres) would be managed for possible development of a commercial ski area.

The remainder of the planning area would be managed for extensive recreation use.

Approximately 151,000 acres would be managed as open to ORV use; 44,137 acres would be closed. Vehicle use would be limited to designated roads and trails yearlong on 147,059 acres; there would be seasonal limitations on 140,881 acres.

Cultural resources would be protected from surface-disturbing activities as required by law. Approximately 2,738 acres west of Montrose and Olathe would be managed temporarily as Current Scientific Use Areas. No projects or treatments would be allowed on these areas. A Class III inventory would be conducted and high-value sites would be assigned a long-term protective classification.

Visual resources would be managed according to VRM guidelines, with 43,807 acres under VRM Class I, 47,852 acres under VRM Class II, 37,355 acres under VRM Class III, and 354,063 acres under VRM Class IV.

The Camel Back WSA, Adobe Badlands WSA, and Gunnison Gorge WSA (a total of 41,865 acres) would be recommended as suitable for designation as wilderness.

Public lands on 106,851 acres would be open to development of major utility facilities. A total of 32,356 acres would be open to but not preferred for utility development, and 69,906 acres would be closed to utility development. Special stipulations and conditions would restrict utility development on 273,964 acres.

No public lands would be considered suitable for disposal. Six tracts of non-federal land in the Gunnison Gorge SRMA (2,200 acres) and two tracts of non-federal land within and adjacent to the Camel Back WSA (320 acres) would be considered for acquisition. Available non-federal lands in crucial big game winter ranges, riparian zones, and waterfowl habitat areas would also be considered for acquisition through exchange opportunities.

Public access would be acquired into seven public land areas.

Public lands totalling 112,945 acres would be managed for intensive fire suppression; 201,799 acres would be managed for conditional fire suppression. Prescribed fire would be permitted on 168,333 acres.

## PREFERRED ALTERNATIVE

The Preferred Alternative is the Bureau's favored management approach. This resource management option was developed based on an analysis of the other three alternatives. Under the Preferred Alternative, the planning area would be managed using the multiple-use concept with restrictions applied so that the alternative's objectives would be achieved, statutory requirements and policy commitments would be met, and identified issues would be resolved in a balanced, cost-effective manner.

Existing air quality would be maintained. All actions would comply with air quality standards and regulations.

Existing coal leases on 26,663 acres would be continued. Approximately 83,334 acres of federal coal estate in the Paonia/Somerset and Bookcliffs coal areas would be identified as acceptable for further coal leasing consideration. There are an additional 1,756 acres of federal coal reserves under private surface and within the Gunnison National Forest boundary. Approximately 920 acres would be acceptable for further coal leasing consideration with stipulations.

Leasing of federal oil, gas, and geothermal estate would be allowed on 511,074 acres with standard lease terms. There would be a yearlong no surface occupancy stipulation on 80 acres, and seasonal stipulations on 174,542 acres. Seasonal stipulations would also apply to seismic activities. Approximately 21,038 acres would be closed to leasing.

Existing withdrawals currently close 59,330 acres to mineral location and entry under the mining laws. Under this alternative, it would be recommended that these withdrawals be retained on 9,440 acres and revoked on 49,890 acres. Revocation of the withdrawals would open 49,890 acres to mineral entry and location. The Gunnison Gorge area (21,118 acres) would be closed to mineral entry and location. Mineral entry and location would be allowed on the remained of the federal mineral estate (644,664 acres).

Disposal of mineral materials would be allowed on 451,315 acres of public land with federal mineral estate. Disposal of mineral materials would be subject to seasonal restrictions on 96,839 of these acres, and would require review by the agency holding the withdrawal on 9,360 acres. Disposal of mineral materials would not be permitted on 29,710 acres.

Water quality and erosion conditions would be inventoried and monitored. All actions under this alternative would comply with water quality standards and regulations.

## SUMMARY

Approximately 33,090 acres, including the Elephant Skin Wash project, would be intensively managed to reduce salinity loads in the Colorado River. Projects and special protective measures would be developed. Projects designed to reduce runoff, erosion, and sediment on 47,260 acres could be developed if they would not conflict with big game and riparian habitat management, livestock grazing, and forest management.

Riparian zones on 6,320 acres would be improved through implementation of special protective and restorative measures. Riparian zones in the remainder of the planning area would be maintained in their present condition.

One ACEC and one RNA (a total of 2,272 acres) would be designated to protect threatened and endangered plants and unique plant associations, and to identify recreation hazards. Measures to protect threatened and endangered species would be required in plans for all surface-disturbing activities. Habitat suitable for bald eagles and river otters would be maintained in the Gunnison Gorge area.

Approximately 66,110 acres would be intensively managed as crucial deer and elk winter range. Big game forage allocations would be maintained at present levels. A total of 3,292 acres in the Storm King area would be intensively managed as elk calving habitat. Approximately 1,990 acres along the Gunnison River west of Delta would be intensively managed and improved for waterfowl habitat. Seventy (70) miles of streams would be intensively managed to restore and protect aquatic habitats.

Public lands would be managed as "I" category (336,562 acres), "M" category (74,817 acres), and "C" category (39,033 acres) grazing allotments. Suitable unallotted lands on 26,873 acres would be considered for grazing use authorizations except on areas where wildlife has priority for forage. No livestock grazing would be allowed on 5,792 acres. Grazing use would be managed at present forage allocation levels. Land treatments and project developments would be restricted on 149,261 acres. Grazing use would be restricted (season of use, percent utilization) on 39,410 acres.

Wildlife would have priority for allocation of future additional forage on 89,098 acres; livestock would have priority on 186,810 acres. Future additional forage on 207,169 acres would be divided evenly between wildlife and livestock.

Commercial forests on 3,127 acres (estimated allowable harvest of 160.5 MBF/year) and suitable woodlands on 24,255 acres (estimated allowable harvest of 1,213 cords/year) would be managed for sustained yield production. Seasonal restrictions would apply on 1,606 acres of commercial forest lands.

The outer portion of the Gunnison Gorge area (40,792 acres) would be managed for motorized and non-motorized recreation opportunities. Until a decision is made on wilderness designation, the Gunnison Gorge WSA would be managed for non-motorized recreation and whitewater boating opportunities. Boating use would be managed for six to ten group encounters per day with commercial overnight trips limited to two per day.

The Needle Rock area would continue to be managed as an ONA. The lower Gunnison River, below Escalante Bridge, would be managed for boating opportunities. River access would be developed and maps and information provided. The Escalante Canyon ACEC would be managed and developed for recreation use that would not conflict with threatened and endangered plants. A portion of the adobes north of Delta (8,942 acres) would be managed for ORV use. For a five-year period the Storm King Peak area would be managed so as not to preclude possible development of a commercial ski area. After five years, management actions that could adversely affect this recreation potential would be allowed.

The remainder of the planning area would be managed for extensive recreation use.

Approximately 261,589 acres would be managed as open to ORV use; 29,821 acres would be closed. Vehicle use would be limited to designated roads and trails yearlong on 56,271 acres; there would be seasonal vehicle-use limitations on 135,396 acres.

Cultural resources would be protected from surface-disturbing activities as required by law. A Class III inventory would be conducted on 5,848 acres west of Montrose and Olathe. Some identified high-value sites would be assigned a long-term protective classification.

Visual resources would be managed according to VRM guidelines, with 21,118 acres under VRM Class I, 30,430 acres under VRM Class II, 297,154 acres under VRM Class III, and 134,375 acres under VRM Class IV.

The Gunnison Gorge WSA (21,038 acres) would be recommended as preliminarily suitable for designation as wilderness. The Camel Back WSA and Adobe Badlands WSA (a total of 20,827 acres) would be recommended as non-suitable for designation as wilderness.

Public lands on 301,006 acres would be open to development of major utility facilities. A total of 75,255 acres would be closed to utility development. Special stipulations and conditions would restrict utility development on 106,816 acres.

One hundred sixty-nine (169) tracts of public land (27,424 acres) scattered throughout the planning area would be considered suitable for disposal. Non-federal lands would be considered for acquisition through exchange opportunities

## **SUMMARY**

if they meet established criteria and enhance resource management within management units.

Public access would be acquired into 16 public land areas.

Public lands totalling 110,252 acres would be managed for intensive fire suppression; 202,895 acres would be managed for conditional fire suppression. Prescribed fire would be permitted on 169,930 acres.

**CHAPTER ONE**  
**INTRODUCTION**

# CHAPTER ONE

## INTRODUCTION

This document consists of a proposed resource management plan (RMP) and a draft environmental impact statement (EIS) analyzing the effects of the proposed plan and its alternatives. The draft RMP/EIS has been prepared in accordance with the Bureau of Land Management's (BLM's) planning regulations (43 CFR 1600) and regulations implementing the National Environmental Policy Act (NEPA) of 1969 (40 CFR 1500).

### PURPOSE AND NEED

The primary purpose of the RMP/EIS is to update and integrate the BLM's land use planning for the area into a single, comprehensive land use plan providing the overall framework for managing and allocating public land resources in the Uncompahgre Basin planning area over the next ten to twelve years.

In addition to identifying management direction within the planning area, the RMP/EIS meets several specific objectives. It (1) identifies federal coal lands that are acceptable for further leasing consideration, acceptable for further leasing consideration with stipulations, or unacceptable for leasing; (2) analyzes the suitability of three Wilderness Study Areas (WSAs) for inclusion into the National Wilderness Preservation System (NWPS); and (3) identifies public land to be designated as open, closed, or limited to off-road vehicle use.

Implementation of the RMP/EIS will be monitored, and the plan will be evaluated periodically. Revisions or amendments may be necessary to accommodate changes in resource needs, policies, or regulations.

### LOCATION

The Uncompahgre Basin planning area is a geographic division of the Uncompahgre Basin Resource Area (UBRA) of the BLM's Montrose District. The planning area is located in west-central Colorado in portions of Delta, Gunnison, Mesa, Montrose, and Ouray counties (See Figure 1-1). It is bordered in part by the Grand Mesa, Uncompahgre, and Gunnison National Forests. Figure 1-2 depicts the planning area boundaries.

The planning area encompasses approximately 1.38 million acres. The BLM has administrative responsibility for the public lands and resources on 483,077 surface acres and 755,923 acres of subsurface federal mineral estate. Table 1-1 details surface and subsurface ownership within the planning area by county.

### PLANNING ISSUES, CRITERIA, AND MANAGEMENT CONCERNS

The planning process for this RMP/EIS began in August 1983 with issue identification. Public meetings to determine the scope of the document and to identify public concerns that should be addressed by the RMP/EIS were held in Delta, Hotchkiss, and Montrose, Colorado. Written comments were also solicited.

The RMP/EIS defines and resolves the issues which were identified by the BLM, other agencies, and the general public. The issues were refined and finalized, and planning criteria were developed for each issue.

Planning criteria include legal, policy, or regulatory constraints that direct or limit the BLM's ability to resolve issues, as well as responses to public input or coordination efforts with other agencies. The planning criteria were used to establish limits for proposed resource uses and to develop alternatives.

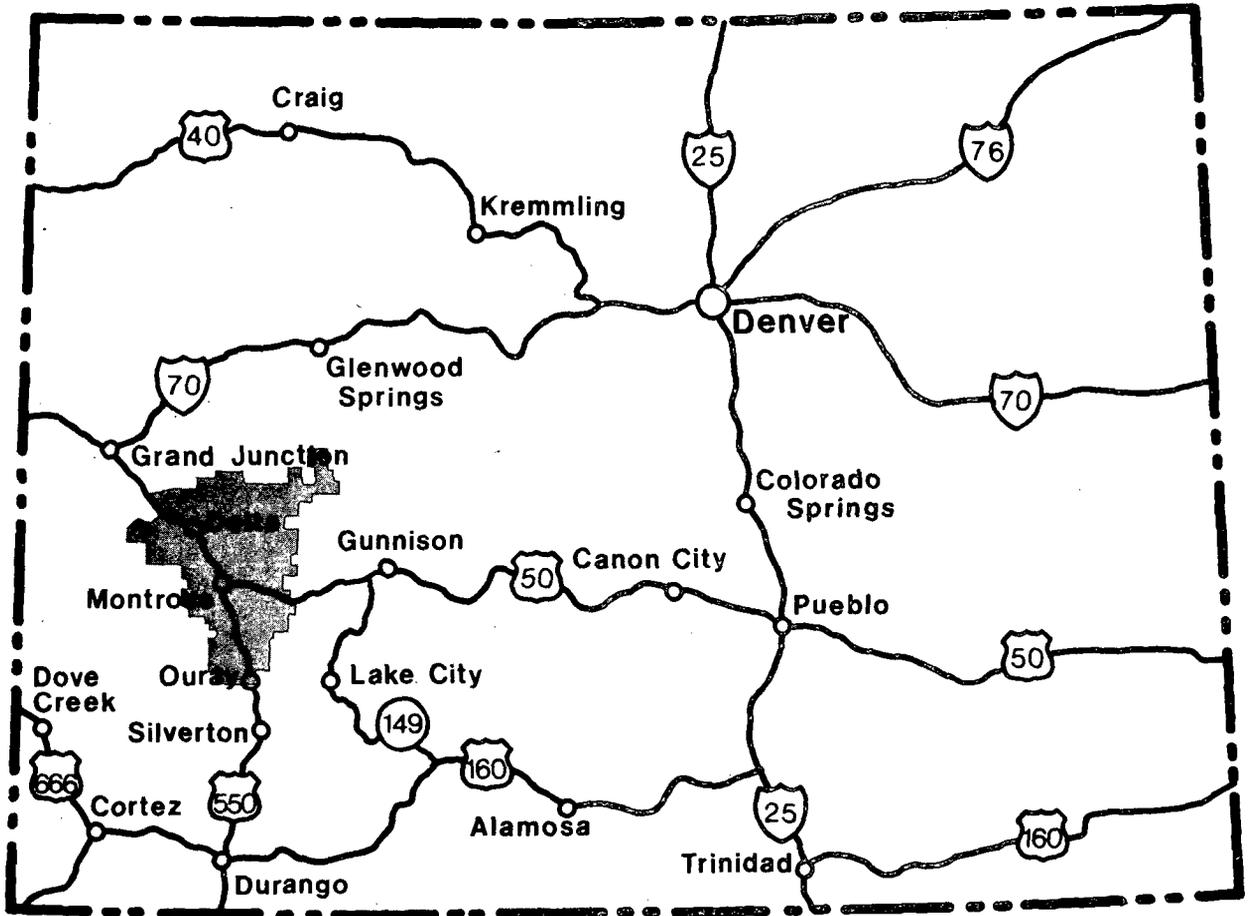
Specific planning issues and criteria are identified in Table 1-2. Internal (BLM) management concerns that should be addressed in the RMP/EIS are listed in Table 1-3.

### TOPICS NOT ADDRESSED IN THE PLAN

Several topics identified during the scoping process could not be addressed appropriately in the RMP/EIS, due primarily to a lack of sufficient data or because they exceed the scope of the RMP/EIS. They may be analyzed later in specific Environmental Assessments (EAs) or in individual EISs. The following topics are not addressed in this RMP/EIS:

Bureau of Land Management/Forest Service inter-change proposal;

# COLORADO



 Planning Area

Figure 1-1

# UNCOMPAHGRE BASIN PLANNING AREA

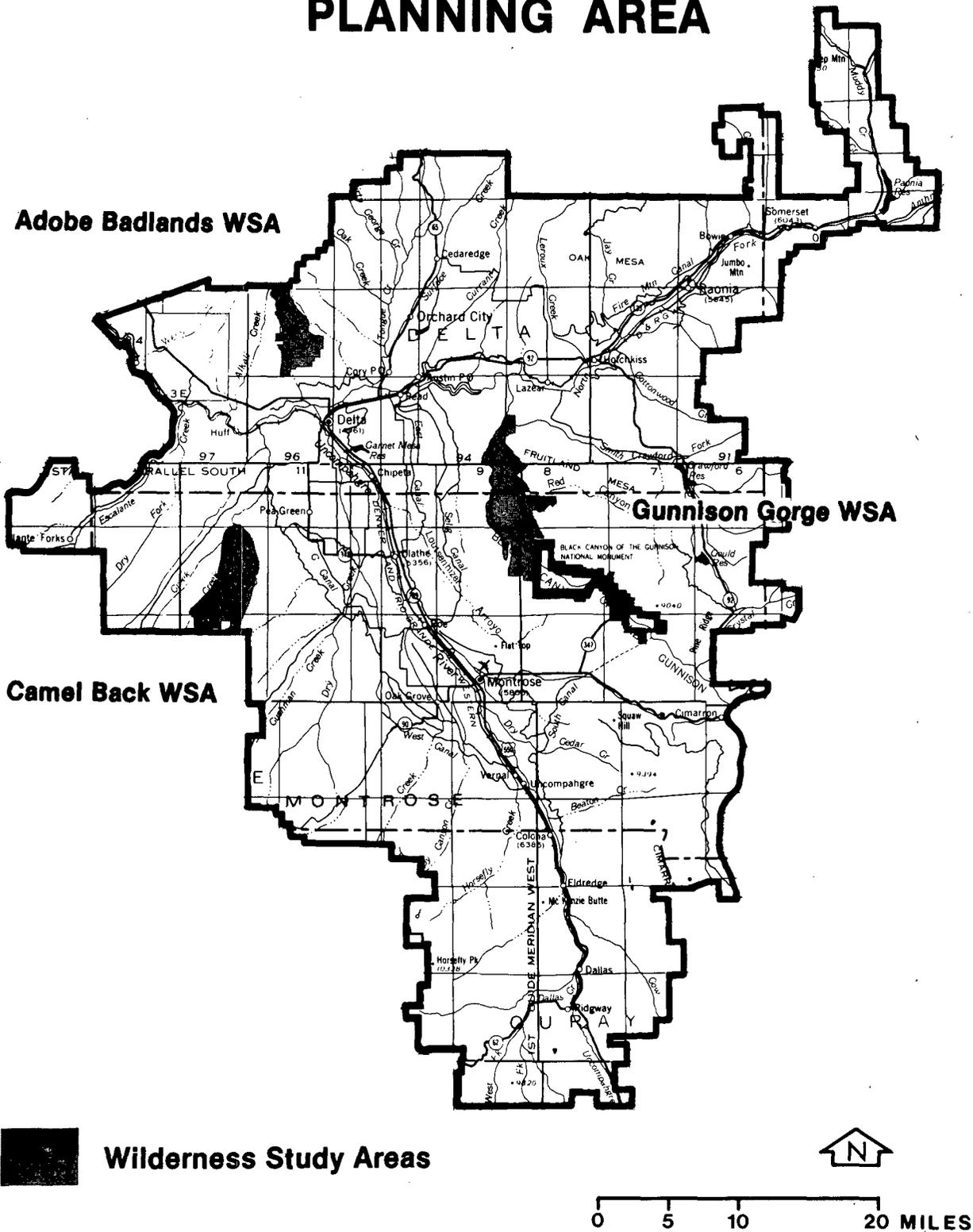


Figure 1-2

## CHAPTER ONE

Table 1-1

### OWNERSHIP STATUS IN THE PLANNING AREA IN ACRES OF SURFACE AND SUBSURFACE ESTATE

	COUNTY					TOTAL
	DELTA	GUNNISON	MESA	MONTROSE	OURAY	
<b>1. SURFACE ESTATE</b>						
<b>FEDERAL LAND <sup>1</sup></b>						
BLM	181,187	13,515	14,190	248,750	25,435	483,077
USFS	—	140	—	—	—	140
NPS	—	—	—	12,990	—	12,990
<b>STATE LAND <sup>2</sup></b>						
DOW	4,332	—	—	3,338	4,547	12,217
Other	—	—	—	—	680	680
PRIVATE LAND	326,207	55,512	1,912	326,282	163,615	873,528
<b>TOTAL SURFACE ACRES</b>	<b>511,726</b>	<b>69,167</b>	<b>16,102</b>	<b>591,360</b>	<b>194,277</b>	<b>1,382,632</b>
<b>2. SUBSURFACE ESTATE <sup>3</sup></b>						
<b>FEDERAL ESTATE</b>						
All Minerals	247,712	42,742	14,255	337,447	45,972	688,128
Coal	16,080	11,432	—	16,495	4,852	48,859
Oil, Gas, and Coal	3,060	1,422	—	1,270	2,200	7,952
Oil and Gas	4,370	—	—	4,002	2,282	10,654
3/4 FEDERAL MINERALS	130	—	—	200	—	330
<b>TOTAL ACRES OF FEDERAL SUBSURFACE</b>	<b>271,352</b>	<b>55,596</b>	<b>14,255</b>	<b>359,414</b>	<b>55,306</b>	<b>755,923</b>

Notes:

<sup>1</sup> BLM = Bureau of Land Management; USFS = U.S. Forest Service; NPS = National Park Service.

<sup>2</sup> DOW = Colorado Division of Wildlife.

<sup>3</sup> The BLM administers subsurface federal estate underlying private, state, and other federal lands. The BLM does not administer the private surface overlying federal mineral estate except where federal laws are applicable.

Table 1-2

## INTRODUCTION

## PLANNING ISSUES AND CRITERIA

RESOURCE	PLANNING ISSUE	PLANNING CRITERIA
COAL	1. Identify those areas within the Paonia/Somerset and Bookcliffs coal areas which would be suitable for further leasing consideration. Determine areas where coal development could result in conflicts with water needs and/or water rights. Categorize lease areas with consideration for potential development problems and management conflicts.	<p>1.a. Apply unsuitability criteria (43 CFR 3461) to the entire Paonia/Somerset coal area and to those portions of the Bookcliffs coal area within the planning area. Coordinate application of these criteria with the USFS on adjacent land.</p> <p>1.b. Consider and determine present and future demands for coal.</p> <p>1.c. Consider high potential coal areas and areas adjacent to existing leases.</p> <p>1.d. Consider coal transportation costs and problems.</p> <p>1.e. Consider adverse effects of coal development on other resources and values not covered under unsuitability criteria.</p> <p>1.f. Identify areas of possible surface mining to allow for surface owner consultation.</p>
WATER QUALITY (SALINITY)	2. Identify major source areas contributing to the salinity problem in the Colorado River drainage. Determine uses that contribute salinity and develop measures to curtail the problem.	<p>2.a. Comply with federal and state water quality standards.</p> <p>2.b. Comply with the Colorado River Basin Salinity Control Act of 1974 and amendments thereto.</p>
FORESTRY	3. Identify those woodlands in the planning area which will be managed predominantly for either forage production or woodland products.	<p>3.a. The level of fuelwood harvest should not exceed projected dependency and demand.</p> <p>3.b. Consider other resource values such as wildlife habitat and impacts to water rights, as well as forage production and woodland products.</p>
RECREATION	4. Determine if development of the proposed Storm King Peak Ski area would be compatible with wildlife habitat, timber production, and coal production.	4.a. Compare the value of forest and mineral resources against other resource values, i.e., wildlife habitat, recreation, etc., given current policy and regulations.

RESOURCE	PLANNING ISSUE	PLANNING CRITERIA
OFF-ROAD VEHICLES	5. Considering resource values and current recreation activities and use, delineate ORV use areas within the planning area with open or closed or limited designations. Identify any restrictions to be applied in areas recommended for limited use.	5.a. Consider impacts from ORV use on other resources. 5.b. Coordinate ORV designation decisions with the transportation plan.
WILDERNESS	6. Determine if any of the three WSAs, or portions thereof, should be recommended as suitable for inclusion in the National Wilderness Preservation System. Identify alternative management for those areas not recommended for wilderness designation.	6.a. Comply with the criteria and associated components outlined in the BLM's wilderness study policy. 6.b. Consider manageability of each area as wilderness. 6.c. Consider wilderness or other resource values that would be enhanced or restricted by wilderness designation.
LANDS	7. Identify lands suitable for disposal or lands that should be retained in public ownership.	7.a. Identify those lands that are difficult or uneconomical to manage and which would best serve the public interest through their disposal. 7.b. Consider lands that have no important wildlife, timber, recreation, or other resource values. 7.c. Give emphasis to needs of federal, state, and local governments and communities. 7.d. Consider the mineral resource values, including sand and gravel, of all identified tracts. 7.e. Consider the level of public investments on identified lands.
	8. Identify non-federal lands that would best serve public needs and interests if in public ownership.	8.a. Consider areas where public ownership would enhance management opportunities, e.g., expand crucial wildlife habitat. 8.b. Consider lands now controlled by other federal or state agencies, especially the DOW.

Table 1-3  
MANAGEMENT CONCERNS

RESOURCE	MANAGEMENT CONCERN
MINERAL MATERIALS	1. Identify areas suitable for management for disposal of mineral materials (mainly decorative stone, rip-rap, and gravel), considering present and future demands and the needs of other agencies and local governments.
WILDLIFE HABITAT and LIVESTOCK GRAZING	2. Identify high potential fisheries requiring improvement and management, giving priority to high use areas and considering DOW's long range planning and assistance capability. 3. Determine if livestock and wildlife objectives and decisions in the Grazing ES are being met or if revisions are necessary based on more current data. Categorize grazing allotments according to the BLM's policy.
FORESTRY	4. Determine and delineate areas to be managed predominantly for regulated timber production. 5. Identify harvest levels for sustained yield of regulated timber production in the planning area. 6. Establish guidelines for fuelwood disposal.
RECREATION	7. Identify lands and extensive recreation use areas where recreation activities will be the predominant use, considering projected recreation demands in the area, visitor and resource protection capability, public access, and compatibility with other uses.
SPECIAL DESIGNATIONS	8. Identify and evaluate areas for special management designation and/or recognition as ACECs, SRMAs, Natural Areas, etc.
LANDS	9. Identify public land that would be unsuitable as right-of-way routes for major public utilities such as 69 kv or larger powerlines, six-inch or larger pipelines, railroads, or improved and maintained roads.
ACCESS	10. Identify access needs that provide reasonable public access to public land; give priority to high-use areas. Consider land exchanges along with cooperative agreements with other agencies or entities to meet access needs. Insure that access proposals are consistent with the BLM transportation plan.

## CHAPTER ONE

Colorado-Ute Southwest Project (coal-fired generation station);  
 Industrial and hazardous waste disposal sites;  
 Dominguez Dam;  
 Colorado-Ute coal reduction/power generation station;  
 Sweetwater Resources coal reduction/power generation station;  
 Grand Mesa Project;  
 Funding levels;  
 Information programs;  
 Enforcement capabilities;  
 Deficit timber sales;  
 Fee structure determination;  
 Policies and regulations.

### EXISTING PLANNING DOCUMENTS

There are currently four land use management plans covering the Uncompahgre Basin Planning Area. These Management Framework Plans (MFPs) provide management direction for all activities and the decisions needed to implement the plans. The Gunnison Gorge MFP was completed in 1969, the Escalante and Cimarron MFPs in 1971, and the North Fork MFP in 1974. The North Fork MFP was amended in 1977 and again in 1981 to provide direction on coal-related activities. The objectives and management directions identified in these plans are incorporated into the RMP/EIS as the Continuation of Current Management Alternative. When approved, the final RMP/EIS will replace these older planning documents as management guidance.

### EXISTING BROAD ENVIRONMENTAL DOCUMENTS

In addition to the MFPs, the BLM has completed several major EAs or EISs for various program activities in the planning area; these are listed in Table 1-4. These documents provide management direction which is reflected in the Continuation of Current Management Alternative. When completed, the Record of Decision (ROD) for the RMP/EIS may alter management decisions which were based on these EAs and EISs.

Table 1-4

### CURRENT ENVIRONMENTAL DOCUMENTS FOR PROGRAM ACTIVITIES IN THE PLANNING AREA

EA or EIS TITLE	DOCUMENT COVERAGE
District-wide Mineral Materials Umbrella EA (1973)	Prescribes general conditions for mineral material sales; identifies stipulations for permitted removals.
Uncompahgre Basin Resource Area Grazing Final ES (1978), Range Management Program (1978), and Rangeland Program Summary Update (1985)	Identifies long-term rangeland management objectives and vegetation goals; summarizes current grazing program and actions implemented.
West-Central Colorado Coal Final EIS (1979)	Identifies regional impacts of six mining and reclamation plans for existing coal leases.
Forest Products Disposal EA (1979)	Identifies stipulations for disposal of minor forest products.
Gunnison River Basin Oil and Gas Umbrella EA (1982)	Identifies resources requiring protection and stipulations on oil and gas activity throughout the planning area.
Uinta-Southwestern Utah Coal Region Round Two Final EIS (1983)	Assesses the impacts of four levels of coal development in the region.

### DOCUMENTS RELATED TO THIS RMP/EIS

In addition to this RMP/EIS, four other documents have been assembled which either provide background information or focus on a particular resource relative to this planning effort. All of these documents are available for review and comment at the Uncompahgre Basin Resource Area Office (see the RMP/EIS cover letter for details).

The *Management Situation Analysis* summarizes the existing inventory data for each of the resources present on the public lands. The MSA provides most of the background information for the RMP/EIS.

The *Oil and Gas Technical Report* provides additional background data for the RMP/EIS and a more detailed analysis of the oil and gas resource. The report includes maps of the area's Known Geological Structures and documents the history and trends of oil and gas development within the planning area.

## INTRODUCTION

The *Coal Unsuitability Report* documents the application of the 20 coal unsuitability criterion outlined in Title 43, Code of Federal Regulations-Part 3461 (43 CFR 3461), to the federal coal estate within a portion of the planning area.

The *Wilderness Technical Supplement* focuses specifically on the three Wilderness Study Areas (WSAs) within the planning area. It describes the four RMP/EIS management alternatives for the WSAs and analyzes the environmental impacts of each alternative in detail.

## COAL PLANNING

The Federal Coal Leasing Amendment Act of 1976 outlines procedures for leasing and development of federally-owned coal lands. This Act requires that coal leasing be compatible with land use allocations outlined in comprehensive land use plans. The Surface Mining Control and Reclamation Act of 1977 established federal standards for regulating surface mining and reclamation activities on federal, state, and private lands. The Department of Interior has incorporated these Acts into regulations requiring the analysis of four coal planning screens during land use planning. Documented in Title 43, Code of Federal Regulations-Part 3420.1 (43 CFR 3420.1), these planning screens are applied to determine the leasability of federal coal lands.

The first screen (coal development potential) eliminates federal coal lands that have little or no coal development potential. The second screen (coal unsuitability review) eliminates lands that have sensitive resources. The third screen (multiple-use tradeoffs) eliminates lands that have resources considered more important than coal or identifies lands where special stipulations are required to protect important resources. The fourth screen (surface owner consultation) eliminates private land with federal coal based on the landowner's opposition to surface mining.

The first coal planning screen was completed prior to 1980 when the U.S. Geological Survey (USGS) identified as coal planning areas all the federal coal lands within the region that have coal development potential. The Bookcliffs (965 acres), Paonia/Somerset (94,960 acres), and Cimarron Ridge (14,134 acres) coal planning areas were identified within the Uncompahgre Basin planning area.

Federal coal lands passing through the first coal planning screen are subject to application of the 20 coal unsuitability criteria in the second coal planning screen. These 20 criteria, outlined in Title 43, Code of Federal Regulations-Part 3461.1 (43 CFR 3461.1), are a uniform national standard to insure that 20 specific resources and land uses are not foregone by coal mining. Federal coal lands not meeting the standards

required by each criterion are determined to be unsuitable for coal leasing. A number of criteria have exemptions and exceptions. Application of these exemptions and exceptions may allow certain types of coal mining.

A total of 20,945 acres of federal coal lands are presently leased and were not subject to the second coal planning screen as per 43 CFR 3461.4-2. An additional 5,718 acres of presently leased federal coal lands were previously determined to be suitable as identified in the following documents: the North Fork MFP as amended; and the environmental assessments for the West Elk Coal Company Coal Lease Modification Application (Serial Number D-044569), the Colorado Westmoreland, Inc., and Western Slope Carbon, Inc., Short-Term Competitive Coal Lease Applications (Serial Numbers C-27432 and C-27103), and the Grand Mesa Properties Company Coal Lease Modification Application (Serial Number D-055156).

All portions of the coal planning areas within the Uncompahgre Basin planning area that are not leased for coal development are undergoing the second coal planning screen in concurrence with this RMP/EIS. These unleased federal coal lands total 83,396 acres in the Bookcliffs and Paonia/Somerset coal planning areas.

Based on initial application of the 20 criteria, 82,827 acres were determined to be acceptable for further coal leasing consideration. Of these lands, 15,662 acres were determined to be suitable only with specified constraints. Lands determined to be unsuitable for further leasing consideration total 569 acres. No exemptions were determined to apply within the review area. Prior to the leasing of a federal coal tract, the results of this coal planning screen will be reviewed on a site-specific basis to determine if any changes are necessary in the application of the 20 criteria.

Public lands that have resources determined to be more important than coal development are either protected by special stipulations or eliminated from coal leasing consideration in the third coal planning screen. These multiple-use trade-off determinations are made during the RMP/EIS process. This RMP/EIS fulfills the requirements of the third coal planning screen for all of the federal coal within the planning area, including existing leased lands.

The fourth coal planning screen requires consultation with the owners of split-estate lands when federal coal is being considered for leasing and surface mining techniques are considered likely. This coal planning screen was determined to not apply to the coal planning areas within the Uncompahgre Basin planning area as no surface mining of significant amounts of coal is anticipated.

Information derived from completion of these four coal planning screens is forwarded to the appropriate interagency Regional Coal Team. Lands determined to be acceptable

## CHAPTER ONE

for further lease consideration may be made available for coal leasing by this team.

### RELATIONSHIP WITH OTHER AGENCIES' PLANS

To reduce or avoid conflicts between administrative agencies, the planning documents for adjoining lands have been reviewed and, where appropriate, that information has been used in the formulation and description of the management units in this RMP/EIS. These plans are listed in Table 1-5.

Table 1-5

#### EXISTING LAND USE PLANS ADMINISTERED BY OTHER ENTITIES ON ADJOINING LANDS

TITLE OF PLAN	PLAN TYPE	ADMINISTRATION
Gunnison Basin Management Framework Plan	Land Use	Bureau of Land Management
San Juan/San Miguel Resource Management Plan (Final)	Land Use	Bureau of Land Management
Grand Junction Resource Management Plan (Final)	Land Use	Bureau of Land Management
Grand Mesa-Uncompahgre-Gunnison National Forests Land and Resource Management Plan	Land Use	U.S. Forest Service
Land Protection Plan for the Black Canyon of the Gunnison	Development and Land Use	National Park Service
Curecanti National Recreation Area General Management Plan	Development and Land Use	National Park Service
Gunnison County Master Plan	Master Plan	Gunnison County government
Mesa County Master Plan	Master Plan	Mesa County government
Montrose County General Land Use Plan	Master Plan	Montrose County government
Ouray County Master Plan	Master Plan	Ouray County government

**CHAPTER TWO**  
**AFFECTED ENVIRONMENT**

# CHAPTER TWO

## AFFECTED ENVIRONMENT

Chapter Two provides a general description of the physical environment of the planning area and the resources which would be affected by the proposed resource management plan.

The information in this chapter is summarized from the Management Situation Analysis. The MSA and additional information and data are available for review at the BLM's Uncompahgre Basin Resource Area Office at 2505 South Townsend Avenue in Montrose, Colorado.

### CLIMATE

The planning area has a dry high valley/mountainous continental climate characterized by low humidity, sunny days, clear nights, low to moderate precipitation and evaporation, and wide-ranging diurnal temperature changes. The complex regional topography causes considerable variation in site-specific temperatures, precipitation, and surface winds. Seasonal conditions vary from frigid and blizzard-like to hot and dry (Pedco Environmental, Inc. 1981).

### AIR QUALITY

Although monitoring data for most pollutants is not available, air quality in the planning area is typical of undeveloped regions in the western United States. Ambient pollutant levels are usually near or below measurable limits. Locations vulnerable to decreasing air quality due to extensive development include the immediate operations areas (surface mines, milling operations, power plants, etc.) and local population centers.

### AIR QUALITY REGULATIONS

National ambient air quality standards set limits on the total amounts of specific pollutants allowed in the atmosphere. State standards address the same parameters, but may be more stringent (e.g., Colorado's three-hour sulfur dioxide standard). Federal and state air quality standards for carbon monoxide, lead, nitrogen dioxide, oxidants, sulfur dioxide, and total suspended particulates (TSP) are depicted in Table 2-1.

These standards were established to protect public health (primary standards) and public welfare (secondary standards). Areas which consistently violate minimum federal standards because of human activities are classified as "nonattainment" areas, and a plan to reduce ambient levels to below the maximum pollution standards must be implemented in these areas.

Under the Environmental Protection Agency's (EPA's) "Fugitive Dust Policy," areas which violate the TSP Ambient Air Quality Standards but which lack significant industrial particulate sources and have a population less than 25,000 are designated as "unclassified", i.e., neither "attainment" nor "nonattainment." "Unclassified" areas are generally exempt from offset provisions, retrofitting controls, and meeting new source control requirements that were established for "nonattainment" areas by the Clean Air Act.

To protect areas which are not classified as "nonattainment", Congress established a system for the Prevention of Significant Deterioration (PSD) through the Clean Air Act Amendments of 1977. Areas were classified by the additional amounts of TSP and sulfur dioxide degradation which would be allowed. PSD Class I areas, primarily National Parks and some wilderness areas, have the greatest limitations; virtually any degradation would be significant. Areas where moderate, controlled growth can take place were designated as PSD Class II areas. Those areas where the greatest degree of impact is allowed are PSD Class III areas. The state of Colorado established a similar program which limits additional amounts of sulfur dioxide and which classifies areas as Category I, Category II, or Category III (corresponding to greater permissible levels of sulfur dioxide).

### EXISTING AIR QUALITY

Although there is no gaseous pollutant monitoring in the planning area, levels are estimated to be low and within standards. Higher TSP concentrations are likely near communities due to local combustion sources and unpaved roads (Colorado Department of Health, n.d.). Significant regional TSP levels are probably due primarily to windblown fugitive dust.

Most of the planning area has been designated a PSD Class II "attainment" area. Some towns have TSP levels exceeding the standards, but the cause is primarily natural fugitive dust and these towns have been designated "unclassified" for TSP.

Table 2-1  
FEDERAL AND COLORADO AIR QUALITY STANDARDS

POLLUTANT	AVERAGING <sup>1</sup> TIME	AMBIENT <sup>2</sup>				INCREMENT <sup>3</sup>					
		FEDERAL		COLORADO		FEDERAL			COLORADO		
		Primary	Secondary	Primary	Secondary	Class I	Class II	Class III	Category I	Category II	Category III
<i>(micrograms per cubic meter)</i>											
Carbon monoxide	8 hours	10,000	10,000	10,000	—	—	—	—	—	—	—
	1 hour	40,000	40,000	40,000	—	—	—	—	—	—	—
Lead	Quarterly	1.5	1.5	—	—	—	—	—	—	—	—
Nitrogen dioxide	Annual (arith.)	100	100	100	—	—	—	—	—	—	—
Oxidants (ozone)	1 hour	235	235	235	—	—	—	—	—	—	—
Sulfur dioxide	Annual (arith.)	80	—	—	—	2	20	40	2	10	15
	24 hours	365	—	—	—	5	91	182	5	50	100
	3 hours	—	1,300	700	—	25	512	700	25	300	700
Total suspended particulates (TSP)	Annual (geom.)	75	60	75	60 <sup>4</sup>	5	19	37	—	—	—
	24 hours	260	150	260	150	10	37	75	—	—	—

Sources: National Primary and Secondary Ambient Air Quality Standards (40 CFR 50 et seq., as amended January 5, 1983).  
Requirements for Preparation, Adoption and Submittal of Implementation Plans (40 CFR 51.24, as amended September 3, 1982).  
Approval and Promulgation of Implementation Plans (40 CFR 52.21, as amended June 25, 1982).  
Code of Colorado Regulations (Volume 5, Part 14, as amended May 27, 1980).

## Notes:

- Short-term standards (those other than Annual and Quarterly) are not to be exceeded more than once each year, except the federal ozone standard. Under federal regulations, the "expected number of days" with ozone levels above the standard is not to be exceeded more than once per calendar year.
- Ambient standards are the absolute maximum level allowed to protect either public health (primary) or public welfare (secondary).
- Incremental (Prevention of Significant Deterioration) standards are the maximum incremental amounts of pollutants allowed above the baseline in regions of clean air.
- The Colorado annual secondary TSP standard was established as a guide in assessing implementation plans to achieve the 24-hour standard.

## AFFECTED ENVIRONMENT

The Black Canyon of the Gunnison Wilderness Area has the only PSD Class I classification within the planning area. The Black Canyon of the Gunnison National Monument and the Gunnison Gorge Recreation Area are Colorado Category I areas.

## TOPOGRAPHY

The planning area is predominantly a broad river valley surrounded by rolling hills, high plateaus, deep canyons, and rugged mountains. Elevation varies from 5,000 feet in the Gunnison River valley northwest of Delta to just over 11,000 feet on Cimarron Ridge southeast of Montrose.

The eastern portion of the planning area is comprised largely of broken hills and narrow valleys along the western flanks of the West Elk Mountains. The southern portion of the area borders the very high, rugged terrain of the San Juan Mountains. The western portion is characterized by the tablelands and narrow, steep-sided canyons of the Uncompahgre Plateau. The high mesas, foothills, and steep valleys along the southern base of Grand Mesa are in the northern portion of the planning area. The mid-section of the area, with the exception of the Gunnison Gorge, is less rugged, with gently-sloping hills and valleys, leveling off into the Uncompahgre and North Fork river floodplains.

The most striking topographic feature in the planning area is the Gunnison Gorge, eight miles east of Delta. The younger sedimentary rocks of the gorge have been partially eroded. The resulting double canyon consists of a steep-sided, narrow inner gorge within a deep, broad, spacious canyon. The depth of the outer canyon ranges from 1,000 to 2,000 feet, and the inner gorge plunges another 400 to 800 feet to the river.

## COAL

Within the planning area, coal exists in the Dakota, Fruitland, and Mesaverde formations. All mining of federal coal in the planning area has been with underground mining methods. No above-ground mining of federal coal is anticipated in the future except for small amounts in the immediate vicinity of some future portals during the early phases of mine development.

Dakota sandstone outcrops exist along the western edge of the planning area. No present or past mining of Dakota coal has occurred as this coal is of poor quality. There are, however, numerous small diggings in Dakota coal outcrops which indicate a minor amount of local use. Dakota coal areas are not analyzed in this RMP for coal leasing

suitability as the potential for requests to lease this coal is considered highly unlikely.

Mesaverde formation outcrops exist in the North Fork Valley and Cedaredge areas. Fruitland formation outcrops exist along Cimarron Ridge southeast of Montrose. Coal from these formations in the Paonia/Somerset, Grand Mesa, and Tongue Mesa coal fields is low in sulfur and subbituminous. There are currently four producing, three idle, and numerous abandoned coal mines in the Grand Mesa and Paonia/Somerset coal fields. No coal production has ever occurred in the Tongue Mesa coal field.

## OIL, GAS, AND GEOTHERMAL RESOURCES

Oil and gas are known to occur in most of the sedimentary geologic formations which underlie the planning area, including the Dakota sandstone and the Entrada and Mesaverde formations. There are three designated Known Geologic Structures (KGSs) within the planning area. These KGSs, each 360 acres, are located north of Delta on the southern slopes of Grand Mesa. These KGSs were designated on the basis of one test well each. The wells are presently closed but available for production (shut-in). Two of the KGSs show evidence of oil and gas; the other shows evidence of gas.

Most of the planning area is considered prospectively valuable for oil and gas leasing (USGS Open File Reports 76-371 and 77-612). Approximately 706,734 acres are available for oil and gas leasing with approximately 519,015 acres under lease and 48,710 acres under lease application (April 1986 data). The favorability for oil and gas production in the planning area is considered low to moderate as there has been little past and no recent production. Since 1981, only one seismic line has been initiated.

The southern edge of the planning area is prospectively valuable for geothermal resources. Geothermal spring waters have been used privately for hot spring swimming pools and domestic and greenhouse heating. These hot springs originate in the San Juan Volcanic District. There are three pending geothermal leases in the planning area. No geothermal leases presently exist.

## LOCATABLE MINERALS

There has been little past production and no recent production of locatable minerals within the planning area. However, bentonite, humite, gypsum, uranium, placer gold, and precious and base metals have been located by mining

## CHAPTER TWO

claimants. The placer gold occurs in the Uncompahgre and Gunnison river valleys. Precious and base metals occur in the Dominguez Canyon and Gunnison Gorge areas along faults and pegmatite zones in Precambrian rocks.

Uranium is found in the Salt Wash member of the Morrison formation, and bentonite occurs in the Mancos shale and Morrison formation. Lenses of gypsum one to 60 feet thick are found in the Wanakah formation in the Gunnison River Valley. Native sulfur occurs in humite along the Gunnison River near the Smith Fork. There is no recorded production of these minerals.

### MINERAL MATERIALS

Salable mineral materials, including dimension stone, moss rock, sand, gravel, rip-rap, and bentonite (clay) occur in the planning area. Dimension stone, rip-rap, and moss rock are found primarily in Dakota sandstone in the western portion of the planning area. Bentonite occurs in the Mancos shale and Morrison formations. Mancos shale clay materials can be used as brick clay. Sand and gravel occurs along the drainages of the Gunnison and Uncompahgre rivers within Quaternary alluvium. With the exception of bentonite, large quantities of these minerals are available for disposal. There are very few locations with bentonite of acceptable or useable quality.

### NON-ENERGY LEASABLE MINERALS

No non-energy leasable minerals are known to exist in the planning area.

### SOILS

Intensive soil surveys have been completed for the entire planning area by the Soil Conservation Service (SCS). These are the Paonia, Ridgway, Delta-Montrose, and Mesa County soil surveys. Data from these surveys is summarized below, and copies of the surveys are available for review at the UBRA office.

The soils in the planning area are quite variable due to widely divergent geologic parent material, topographic relief, and climatic variability.

The adobe badlands and similar areas underlain by Mancos shale are comprised mainly of shallow silty clay and silty clay loam soils, plus shale rock outcrop with deep silty clay loam soils in the alluvial bottoms. These soils and parent material have a moderate to high salt content

and are very corrosive to metal and concrete. Although these soils support the salt desert vegetation type, plant growth is greatly restricted. High runoff rates contribute considerable salt to the Colorado River system.

The Uncompahgre Plateau and the Crawford/Fruitland Mesa areas have loam and sandy loam soils formed in alluvium and residuum derived from sedimentary rock. The shallow soils support the pinyon-juniper woodland vegetation type; deeper soils support the sagebrush vegetation type at lower elevations and mountain shrub vegetation type at higher elevations. Rock outcrop is prevalent on steep canyon side slopes.

The southern base of Grand Mesa has mostly deep and moderately deep loam and stony loam soils formed in outwash alluvium derived from igneous rock. These soils support pinyon-juniper, sagebrush, and mountain shrub vegetation types.

Deep loamy soils occur on the mountain sideslopes and upland valleys in the southeast portion of the planning area. These soils support high elevation sagebrush, mountain shrub, and timber vegetation types.

Systematic monitoring of soil erosion condition and trend was initiated in the planning area in 1984, and permanent frequency quadrat transects are being established. These transects will be read every five to six years to determine soil erosion trends resulting from changes in vegetation cover.

At present, erosion monitoring data is available for only 18 percent (94,110 acres) of the planning area as shown in Table 2-2. Annual sheet erosion rates were calculated using available erosion data and the Universal Soil Loss Equation (USLE). Erosion rates for these sites were then categorized as natural, slightly accelerated, moderately accelerated, or severely accelerated. Trends in erosion rates have not been established, since the monitoring transects have been read only once.

Table 2-2

#### EROSION CONDITIONS ON INVENTORIED PUBLIC LANDS IN THE PLANNING AREA

EROSION RATES	INVENTORIED ACRES OF PUBLIC LAND
Natural or slightly accelerated	9,105
Moderately accelerated	74,920
Severely accelerated	10,085
<b>TOTAL</b>	<b>94,110</b>

## AFFECTED ENVIRONMENT

### WATER RESOURCES

#### SURFACE WATER

Past accelerated erosion has stripped much of the soil surface horizon from lower elevation pinyon-juniper woodlands and some sagebrush parks. Since this is the most fertile soil layer, soil productivity has been substantially reduced on those sites.

Severe gully erosion is occurring in the McDonald Creek, Youngs Peak, and Sandy Wash areas, on the Dry Cedar grazing allotment, on Beaver Hill, in untreated sagebrush parks above the East Fork Roatcap Gulch, and in the alluvial bottoms in the Brushy Point grazing allotment. Wind erosion is generally not severe in the planning area, although small "blowouts" do occur on localized sites with sandy loam soils and sparse cover.

Soils in the High Park and Storm King Peak areas and in the vicinity of the North Fork Valley are susceptible to mass-wasting. These soils are typically on steep slopes underlain by beds of shale. Soil slumps and mud slides can occur when these soils are saturated as a result of precipitation or irrigation.

Heavy livestock grazing results in soil compaction (Lull 1959; Reynolds and Packer 1962; Rauzi and Smith 1973) causing a reduction in soil macro-pore space which results in reduced infiltration, percolation, and water-holding capacity of the soil, and in increased runoff (Lull 1959). Trampling effects are most severe on moderately wet soils and those with a high clay content (Reynolds and Packer 1962). Within the planning area, compaction is especially severe along drainages, near watering facilities, and on stock trails where heavy livestock traffic occurs.

The western and northern portions of the Gunnison River drainage, a major component of the Upper Colorado River Basin, are within the planning area. Major subbasins include the Uncompahgre, North Fork of the Gunnison, and the lower Gunnison to the Delta/Mesa county line.

Peak flows on these river systems and their tributaries occur between April and the end of June as a result of high elevation snowmelt. Low flows originating primarily from ground water discharges (base flow) occur during fall and winter. The majority of the lower elevation drainages receive little precipitation (less than 15 inches annually) and, consequently, have intermittent or ephemeral flows. High-intensity summer thunderstorms are common in the planning area, often producing high streamflows of short duration.

#### Surface Water Quantity

Water yields from public lands in the planning area is quite variable. Factors influencing water yields include soil type, vegetation type and density, watershed orientation, elevation and slope, and the amount, duration, and intensity of precipitation. Table 2-3 lists estimated water yield in selected vegetation zones in the planning area.

Water from public lands is crucial for satisfying many uses. Livestock, wildlife, and recreationists consume water on-site. There are approximately 500 BLM water

Table 2-3  
WATER YIELD ESTIMATES  
FROM SELECTED VEGETATION ZONES IN THE PLANNING AREA

VEGETATION ZONE	PUBLIC LAND <sup>1</sup> (acres)	PERCENT OF PLANNING AREA	ESTIMATED ANNUAL PRECIPITATION (inches)	ESTIMATED ANNUAL WATER YIELD PER ACRE (inches)
Subalpine forests	6,429	1.3	20-40	5-25
Mountain shrub	53,230	11.0	16-24	1-6
Pinyon-juniper	185,521	38.4	12-18	3-4
Sagebrush	91,938	19.0	8-20	1-4
Salt desert shrub	136,380	28.2	10	1

Sources: Hibbert 1979; BLM 1978; Lusby 1979.

Notes:

<sup>1</sup> Does not include all public land in the planning area.

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developments designed primarily for livestock and wildlife use in the planning area. Livestock on public lands consume an estimated 24 acre-feet of water annually in the planning area.

Water from public land is used off-site (downstream) for water-based recreational activities (rafting, fishing, etc.), adjudicated water rights, and as a portion of the water needed to satisfy the terms of the Colorado River Compact. Both the town of Paonia and the city of Delta divert water for municipal purposes from Lucas Springs and Control Reservoir respectively. Unincorporated domestic water needs are supplied through diversion facilities on Lucas Gulch and Long Gulch Springs.

### Surface Water Quality/Salinity

The BLM coordinates with the State of Colorado in the location and identification of non-point water pollutant sources and in maintaining the established water quality reporting process pursuant to section 305b of the Clean Water Act.

Surface water quality varies considerably throughout the planning area and depends to a large degree on local geology. The highest quality waters typically exist at higher elevations in areas of igneous rock formations that have low sediment yields.

Surface waters on the east side of the Uncompahgre Plateau, the Fruitland Mesa area, and the mid-elevations of the North Fork Valley typically exhibit fair to good chemical water quality as they drain from areas topographically above the Mancos formation and underlain by the Dakota, Morrison, Mesaverde, and Wasatch formations. These waters are usually a calcium bicarbonate type, with total dissolved solids (TDS) ranging in the hundreds of parts per million.

The marine-deposited Mancos formation and the soils derived from it occur on approximately 42,000 acres of public land, mostly in the lower elevations. As the surface water systems flow through these areas, saline tributary surface water and groundwater discharges increase concentrations of dissolved solids. Calcium, magnesium, sodium, and sulfate are the most common constituents. An estimated 5,600 tons of salt are transported annually from public lands within the planning area (assuming an average sediment yield of 4.5 tons per acre per year with salinity being 3 percent of the sediment). Salt yields are accelerated on localized areas due to increased erosion from surface-disturbing activities such as off-road vehicle use and livestock grazing. See Table 2-4 for average salt load estimates for selected sites in the planning area.

Table 2-4  
SALT LOAD ESTIMATES FOR SELECTED SITES IN THE PLANNING AREA

SAMPLING SITE	SAMPLING PERIOD	AVERAGE <sup>1</sup> FLOW (cfs)	AVERAGE TOTAL <sup>1</sup> DISSOLVED SOLIDS (parts per million)	AVERAGE <sup>2</sup> SALT LOAD (tons/day)
Peach Valley arroyo near mouth	1975-81	9	946	23
Currant Creek near Austin	1976-83	3	4,468	41
McDonald Creek near Hotchkiss	1976-81	1	5,516	2
Smith Fork near mouth	1976-83	26	599	42
Alum Gulch near Hotchkiss	1976-83	5	2,128	29
North Fork of the Gunnison River near Somerset	1975-81	383	89	73
North Fork of the Gunnison River near confluence with Gunnison River	1959-80	436	524	558
Uncompahgre River near Colona	1961-83	231	392	245
Uncompahgre River near confluence with Gunnison River	1970-83	336	1,209	1,096
Gunnison River above Escalante Creek	1975-83	2,320	547	3,426

Source: USDI, Bureau of Reclamation.

Notes:

<sup>1</sup> Water flow and quality estimates are calculated from monthly measurements taken during the sampling period.

<sup>2</sup> The salt load is defined here as the total volume of dissolved solids passing the sampling site over the given time period.

## AFFECTED ENVIRONMENT

It is estimated that the Gunnison River basin, a portion of which is not in the planning area, delivers approximately 1.44 million tons of salt annually to the Colorado River (SCS 1982). Approximately 42 percent of this salt is a result of natural processes while the remaining 58 percent is due to human activities. Leaching from on-farm irrigation and off-farm irrigation canal systems is the greatest salt contributor. A salinity control project is partially completed in the 2,400-acre Elephant Skin Wash area four miles northwest of Montrose. When completed, this project will retain approximately 3,100 tons of salt and 103,450 tons of sediment over the 20-year project life. More detailed data on salinity is available at the UBRA office.

Sediment yield varies considerably over the planning area, being primarily dependent upon geology, soil type, precipitation, land use, and physical characteristics of the watershed. The high mountain lands in the upper Uncompahgre River subbasin, such as the Cimarron Ridge area, have the lowest sediment yields. Dense vegetation and igneous rock formations result in average sediment yields of less than 0.5 tons per acre annually. At the other extreme are the lower elevation soils derived from the Mancos formation. These highly erodible soils, combined with sparse vegetation cover, can produce ten tons of sediment per acre annually under natural conditions.

Sediment yields are accelerated in many areas by surface-disturbing land uses such as grazing, mining activity, and off-road vehicle use. Poorly located and unmaintained roads and water developments also produce sediment. A water source inventory was conducted by the BLM in 1982-83 on most of the planning area. At least 80 water developments are in fair or poor physical condition and in need of maintenance.

There is no data quantifying the biological quality of the area's surface waters at present. However, cases of giardiasis (a disease caused by ingestion of the protozoan *Giardia lamblia*) have been reported. Generally watersheds with high big game and livestock use and/or high recreational use have the greatest potential for biological water pollutants. Most natural surface waters are probably biologically contaminated and could pose a threat to human health if consumed untreated.

### GROUND WATER

The planning area is bordered on the south, east, and portions of the north by igneous rock formations which are poor water-bearing zones unless highly fractured. Springs that discharge to the local surface water system are common in fractured zones. Water quality in these aquifers is generally good due to the geochemical properties of the rock.

The rock formations in the remainder of the planning area consist mainly of sedimentary sandstones and shales. The Uncompahgre Plateau, which dips about two degrees to the east-northeast, is capped by the Dakota and Morrison formations. These two formations become confined aquifers where they dip below the Mancos shale and unconsolidated deposits in the lower elevations of the Uncompahgre Valley. The exposed portions of the Dakota and Morrison formations on the plateau serve as the principal recharge areas. The water in the Morrison formation is generally of better quality than that in the Dakota formation; however, water quality degrades in both aquifers with increasing depth (Meeks 1950). TDS concentrations commonly reach into the thousands of parts per million.

The Mesaverde formation is the primary hydrogeologic bedrock unit in the North Fork Valley area. It dips three to five degrees to the north-northeast, beneath Grand Mesa. Outcrops along the North Fork Valley serve as the principal areas of recharge; discharge areas are somewhere north of Grand Mesa. In the upper North Fork Valley, the Mesaverde formation has been dissected by the North Fork of the Gunnison River. Discharge from this formation south of the river enters the North Fork Valley drainage system. The Mesaverde formation is a low water-yielding aquifer, and the water is commonly high in dissolved solids. Water quality gets progressively worse with increased aquifer depth.

The Mancos formation, found in the central and northeastern portions of the planning area, yields only minor amounts of groundwater on a local basis. Water quality is generally poor, being high in dissolved solids. Groundwater recharge from irrigation systems accelerates water quality problems by dissolving and transporting salts. The Mancos formation is the primary source of the excessive salt loads carried by the Uncompahgre and North Fork of the Gunnison rivers.

The unconsolidated valley-fill deposits of the Uncompahgre, North Fork of the Gunnison, and Gunnison subbasins are the highest water-yielding aquifers in the area. Water quality of these aquifers varies considerably, although it is generally of better quality than the water in sedimentary bedrock aquifers.

More site-specific information on groundwater resources within the planning area is available at the UBRA office.

### VEGETATION

Nine broad vegetation types occur within the planning area. The mountain shrub, pinyon-juniper woodland, sagebrush, and desert shrub types comprise 97 percent of the area. Table 2-5 lists the acreage and percentage of public land in each vegetation type.

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Table 2-5  
VEGETATION TYPES ON PUBLIC LANDS  
IN THE PLANNING AREA

VEGETATION TYPE	ACRES	PERCENT OF PUBLIC LAND
Coniferous forest	5,353	1.1
Aspen forest	1,076	.2
Mountain shrub	53,230	11.0
Pinyon-juniper woodland	185,521	38.4
Sagebrush	91,938	19.0
Grassland	1,230	.3
Desert shrub	136,380	28.3
Riparian	1,034	.2
Barren-annuals	7,315	1.5
<b>TOTALS</b>	<b>483,077</b>	<b>100.0</b>

### CONIFEROUS FOREST

The coniferous forest type exists at higher elevations receiving 20 inches or more of precipitation annually. Engelmann spruce (*Picea engelmannii*) and subalpine fir (*Abies lasiocarpa*) are the major species, with occurrences of ponderosa pine (*Pinus ponderosa*), Douglas fir (*Pseudotsuga menziesii*), and quaking aspen (*Populus tremuloides*).

### ASPEN FOREST

The aspen forest type also exists at higher elevations, generally close to surface or subsurface water. The primary overstory species is quaking aspen, with interspersed Engelmann spruce and Douglas fir.

### MOUNTAIN SHRUB

The mountain shrub type includes untimbered lands where shrubs other than sagebrush and rabbitbrush predominate. It exists in areas of 14 to 18 inches of annual precipitation, on elevations from about 7,000 to 9,000 feet. The major overstory species are Gambel oak (*Quercus gambelii*), common serviceberry (*Amelanchier alnifolia*), and mountain mahogany (*Cercocarpus montanus*).

### PINYON-JUNIPER WOODLAND

The pinyon-juniper woodland type is situated below the mountain shrub type on the foothills, mesas, and benchlands of the Uncompahgre Plateau, Grand Mesa, Gunnison Gorge uplift, North Fork Valley, and Cimarron Ridge. It exists in an elevation range of 6,200 to 7,400 feet, where annual precipitation averages 10 to 16 inches. The major overstory species are pinyon pine (*Pinus edulis*) and Utah juniper (*Juniperus osteosperma*). The understory is dominated by common serviceberry, mountain mahogany, bottlebrush squirreltail (*Sitanion hystrix*), Indian ricegrass (*Oryzopsis hymenoides*), and needle-and-thread (*Stipa comata*).

### SAGEBRUSH

The sagebrush type is generally adjacent to the pinyon-juniper type, existing in the same elevation and precipitation zones. The dominant species are big sagebrush (*Artemisia tridentata*) and black sagebrush (*Artemisia nova*). Rabbitbrush (*Chrysothamnus* sp.) is also present. Understory species include blue grama (*Bouteloua gracilis*), galleta grass (*Hilaria jamesii*), bottlebrush squirreltail, bluegrass (*Poa* sp.), Indian ricegrass, and globemallow (*Sphaeralcea* sp.).

### GRASSLAND

The grassland type generally exists in open areas relatively free of trees and shrubs. These areas, whether artificially produced through vegetation treatments or naturally occurring, are dominated by grass species, including wheatgrass (*Agropyron* sp.), bluegrass, galleta grass, and bottlebrush squirreltail.

### DESERT SHRUB

The desert shrub type is typically located at lower elevations adjacent to irrigated croplands in river valleys. Annual precipitation averages below 10 inches. The dominant species are shadscale (*Atriplex confertifolia*), mat saltbush (*Atriplex corrugata*), black greasewood (*Sarcobatus vermiculatus*), galleta grass, cheatgrass (*Bromus tectorum*), and prickly pear cactus (*Opuntia* sp.).

### RIPARIAN

The riparian type (vegetation which requires free water or moist conditions) exists along intermittent and perennial streams, around ponds and springs, and in seeps and bogs. Of the naturally occurring vegetation types in the planning area, riparian vegetation occupies the least acreage and has the highest vegetation production per acre.

## AFFECTED ENVIRONMENT

The largest percentage of riparian vegetation in the planning area is found along stream courses. At lower elevations the vegetation is characterized by the presence of cottonwoods (*Populus* sp.), usually accompanied by willows (*Salix* sp.), skunkbush sumac (*Rhus trilobata*), clematis (*Clematis* sp.), goldenrod (*Solidago* sp.), sedges (*Carex* sp.), rushes (*Juncus* sp.), horsetails (*Equisetum* sp.), and a number of grasses. Higher elevation streams (those above 7,000 feet) are characterized by woody vegetation such as alder (*Alnus* sp.), Rocky Mountain maple (*Acer glabrum*), and a different selection of herbaceous species.

### BARREN-ANNUAL

The barren-annual type includes areas of less than 2 percent perennial vegetation. Species in this type include wild daisy (*Erigeron* sp.), phlox (*Phlox* sp.), cheatgrass, and other annual forbs.

### THREATENED AND ENDANGERED SPECIES

The federal Endangered Species Act protects threatened, endangered, or candidate species whose existence must not be jeopardized by any federal action. Federal agencies are directed by the Act to take any actions within their authority to improve the security of listed species. Species listed and protected by state laws also must not be jeopardized by any federal action. Whenever the location or potential habitat of threatened or endangered species may be disturbed by any federal action, special attention is given to developing mitigation and protective measures.

### THREATENED AND ENDANGERED PLANTS

Several plant species occurring within the planning area have been identified as threatened or endangered on federal or state lists. Others are considered to be candidate or sensitive species. These species are listed in Table 2-6. In addition, there are a number of sensitive, candidate, or federally-listed plants that are known to occur in the region but have not been located within the planning area.

Plant associations considered by the Colorado Natural Areas Program to be unique exist in the Escalante Canyon area. Table 2-7 lists these plant associations and the other plant species that constitute the special vegetation resources of the canyon.

### THREATENED AND ENDANGERED ANIMALS

A total of twelve animal species listed as threatened, endangered, candidate, or sensitive are known to occur within the planning area. These species are listed in Table 2-8. The black-footed ferret (*Mustela nigripes*), a federal and state endangered species, may occur within the planning area but no sightings have been confirmed.

## WILDLIFE

### TERRESTRIAL WILDLIFE

The public lands within the planning area provide habitat for a wide variety of wildlife species which are managed by the Colorado Division of Wildlife (DOW). Table 2-9 identifies the more common species and the vegetation types where they are most often found.

Since 1978, the BLM has increased monitoring of vegetation trend, browse condition, big game utilization, and, in cooperation with the DOW, big game population numbers and trends. Table 2-10 lists the findings of these studies by DOW game management unit (GMU).

The greatest demand for forage on the public lands is made by mule deer during the winter (December through April). The North Fork and Uncompahgre river valleys have heavy winter concentrations of mule deer, and much of the area is considered crucial winter habitat. The demand for forage on public lands is expected to continue to increase due to fencing and residential development on adjacent private land. Appendix A details big game forage calculations and estimated population levels.

In 1986 the DOW reintroduced Rocky Mountain bighorn sheep to the Gunnison Gorge area. It is anticipated the sheep population will reach 150 animals in eight to ten years.

### AQUATIC WILDLIFE

Springs, seeps, reservoirs, streams, and rivers provide aquatic wildlife habitat. There are approximately 500 miles of significant aquatic habitat (creeks, rivers, and water-courses) within the planning area, 160 miles of which occur on public lands. Table 2-11 provides specific information about these streams and the species which inhabit them.

Table 2-6  
 ENDANGERED, THREATENED, CANDIDATE, OR SENSITIVE PLANT SPECIES KNOWN TO OCCUR WITHIN THE PLANNING AREA

COMMON NAME	SCIENTIFIC NAME	STATUS	HABITAT	ESTIMATED <sup>1</sup> POPULATION	ESTIMATED <sup>1</sup> ACRES OF HABITAT
Spineless hedgehog cactus	<i>Echinocereus triglochidiatus</i> <i>var. inermis</i>	Endangered	Gravelly soils on flats and low hills along major drainages	13,000 plus	app. 20,000
Clay-loving wild buckwheat	<i>Eriogonum pelinophilum</i>	Endangered	Whitish soil within Mancos shale	app. 300	app. 40
Uinta Basin hookless cactus	<i>Sclerocactus glaucus</i>	Threatened	Rocky soils	6,000 plus	app. 40,000
Montrose penstemon	<i>Penstemon retrorsus</i>	Candidate <sup>2</sup>	Shallow slopes on Mancos shale	Unknown	Unknown
Delta lomatium	<i>Lomatium concinnum</i>	Candidate <sup>2</sup>	Low altitude Mancos shale areas in association with saltbrush	500 plus	Less than 40
Grand Junction milkvetch	<i>Astragalus linifolius</i>	Candidate <sup>2</sup>	Steep rocky slopes and bottoms in major canyons	Unknown	Unknown
Eastwood monkeyflower	<i>Mimulus eastwoodiae</i>	BLM Sensitive	Limestone seeps, hanging gardens	Unknown	Very restricted
Barnaby's columbine	<i>Aquilegia barnebyi</i>	BLM Sensitive	Base of vertical cliffs often in rock crevices	Unknown	Less than one

## Notes:

<sup>1</sup> Estimated populations and acres of habitat are on public land only.

<sup>2</sup> Listing as endangered or threatened would possibly be appropriate with further study.

Table 2-7  
SPECIAL VEGETATION RESOURCES IN ESCALANTE CANYON

COMMON NAME	SCIENTIFIC NAME	STATUS/RANKING <sup>1</sup>
Uinta Basin hookless cactus	<i>Sclerocactus glaucus</i>	Threatened species
Grand Junction milkvetch	<i>Astragalus linifolius</i>	Candidate species, Category 2
Eastwood's monkeyflower	<i>Mimulus eastwoodiae</i>	Sensitive species
Alkali cordgrass	<i>Spartina gracilis</i>	Globally secure; rare in Colorado; 20 to 40 known occurrences
Hanging garden association Small-flowered columbine Eastwood's monkeyflower	<i>Aquilegia micrantha</i> <i>Mimulus eastwoodiae</i>	Globally secure; imperiled in Colorado; 6 to 20 known occur- rences
Shadscale/Galleta grass association	<i>Atriplex confertifolia</i> <i>Hilaria jamesii</i>	Very restricted global range; threatened globally; imperiled in Colorado; 6 to 20 known occur- rences
Utah juniper/Galleta grass association	<i>Juniperus osteosperma</i> <i>Hilaria jamesii</i>	Very restricted global range; threatened globally; imperiled in Colorado; 6 to 20 known occur- rences
Needle-and-thread/Westslope grassland association	<i>Stipa comata</i>	Imperiled globally; imperiled in Colorado; 6 to 20 known occur- rences

Notes:

<sup>1</sup> These rankings are provided by the Colorado Department of Natural Resources, Natural Areas Program. A standardized ranking process which was developed for use in 41 heritage programs throughout the United States was used to determine status.

CHAPTER TWO

Table 2-8

ENDANGERED, THREATENED, AND CANDIDATE ANIMAL SPECIES  
KNOWN TO OCCUR WITHIN THE PLANNING AREA

COMMON NAME	SCIENTIFIC NAME	STATUS	COMMENTS
Bald eagle	<i>Haliaeetus leucocephalus</i>	Federal and state endangered	Winter resident; hunting habitat
Peregrine falcon	<i>Falco peregrinus anatum</i>	Federal and state endangered	Yearlong resident; hunting habitat
Ferruginous hawk	<i>Buteo regalis</i>	Federal candidate	Possible breeder; winter migrant
Swainson's hawk	<i>Buteo swainsoni</i>	Federal candidate	Summer resident; migrant
Whooping crane	<i>Grus americana</i>	Federal and state endangered	Fall and spring migrant
Greater sandhill crane	<i>Grus canadensis</i>	State endangered	Fall and spring migrant
Long-billed curlew	<i>Numenius americanus</i>	Federal candidate	Migrant
Western yellow-billed cuckoo	<i>Coccyzus americanus occidentalis</i>	Federal candidate	Summer resident; migrant
White-faced ibis	<i>Plegadis chihi</i>	Federal candidate	Migrant
River otter	<i>Lutra canadensis</i>	State endangered	Reintroduced in the Gunnison Gorge, 1977
Colorado squawfish	<i>Ptychocheilus lucius</i>	Federal and state endangered	Resident; Gunnison River
Razorback sucker	<i>Xyrauchen texanus</i>	State endangered and federal candidate	Resident; Gunnison River

**AFFECTED ENVIRONMENT**

**Table 2-9  
COMMON TERRESTRIAL WILDLIFE  
IN THE PLANNING AREA**

<b>COMMON NAME</b>	<b>HABITAT/VEGETATION TYPE</b>
Mule deer	All
Elk	Coniferous forest, aspen, mountain shrub, pinyon-juniper
Pronghorn antelope	Grassland, desert shrub, riparian
Coyote	All
Cottontail rabbit	All
Whitetail jackrabbit	Mountain shrub, pinyon-juniper, sagebrush, grassland, desert shrub
Red squirrel	Coniferous forest, aspen
Ground squirrel	All
Striped skunk	All
Porcupine	Coniferous forest, mountain shrub, pinyon-juniper
Prairie dog	Grassland, desert shrub, sagebrush
Muskrat	Riparian
Collared lizard	Pinyon-juniper, desert shrub, sagebrush
Bullsnake	Pinyon-juniper, desert shrub, riparian, grassland, mountain shrub
Mallard duck	Riparian
Mourning dove	Pinyon-juniper, desert shrub, riparian, grassland, mountain shrub
Scrub jay	Pinyon-juniper, mountain shrub
Kestrel	All
Red-tailed hawk	All
Crow	All

The major game fish species observed in the planning area's streams are rainbow trout (*Salmo gairdneri*), brown trout (*Salmo trutta*), brook trout (*Salvelinus fontinalis*), cutthroat trout (*Salmo clarki*), and pike (*Esox lucius*). Non-game species present include suckers, shiners, and cottids.

The Gunnison River through the Black Canyon of the Gunnison National Monument to the confluence with the North Fork of the Gunnison River is an excellent fishery and the DOW has designated it a Gold Medal trout water. This designation represents the highest quality of trout fishing in Colorado.

**Table 2-10  
FINDINGS FROM HABITAT MONITORING**

<b>GAME MANAGEMENT UNIT</b>	<b>HABITAT CONDITION</b>
GMU-411	Browse condition fair to poor; some localized over-utilization is occurring.
GMU-52	Browse condition fair to poor; browse may be stagnated.
GMU-521	Browse condition good; increasing pressure on public land due to development on private land.
GMU-53	A few areas of over-utilization exist; DOW population objectives may be too high.
GMU-62	Early spring conflict between deer and livestock use exists; distribution of deer within the unit is a problem.
GMU-63	Browse condition poor even with low utilization.
GMU-64	Deer distribution within the unit is poor, resulting in localized overstocking; elk are at their upper limit.
GMU-65	Winter utilization a problem primarily due to distribution.

Table 2-11

## STREAM LENGTH, GRADIENT, CONDITION, AND FISH SPECIES PRESENT ON PERENNIAL STREAMS IN THE PLANNING AREA

STREAM NAME <sup>1</sup>	LENGTH (miles)		GRADIENT (percent)	AQUATIC HABITAT CONDITION	NON-GAME SPECIES (percentage)					GAME SPECIES (percentage)				
	Total	On BLM			Carp	Sculpin	Dace	Minnow	Sucker	Sunfish	Rainbow	Brown	Brook	Cutthroat
Alkali Creek	2.8	0.9	1.3	—	—	—	100	—	—	—	—	—	—	—
Anthracite Creek	11.6	0.4	2.0	Excellent	—	28	11	—	61	—	57	43	—	—
Big Dominguez Creek	29.2	18.5	2.7	—	—	—	—	—	—	—	50	—	—	50
Cottonwood Creek (Delta)	11.0	3.2	4.1	Poor	—	—	100	—	—	—	—	—	—	—
Criswell Creek	17.0	5.5	4.2	Good	—	—	—	—	—	—	—	—	—	—
Crystal Creek	14.4	1.7	5.2	—	—	—	—	—	—	—	—	1	99	—
Currant Creek	20.6	5.4	4.9	Good	—	—	6	—	94	—	—	—	—	—
Deer Creek	6.1	0.2	9.2	—	—	—	100	—	—	—	—	—	—	—
East Fork Dry Creek	12.3	3.8	4.3	Good	—	—	—	—	—	—	—	—	—	100
East Fork Spring Creek	9.2	1.2	4.2	Good	—	—	—	—	—	—	—	—	—	—
East Fork Terror Creek	4.7	0.4	10.2	Excellent	—	—	—	—	—	—	—	—	—	100
Gunnison River No. 3	35.0	20.4	ND <sup>2</sup>	Good	6	1	—	—	93	—	—	—	—	—
Hubbard Creek	11.3	2.1	4.4	Good	—	—	45	—	55	—	90	—	10	—
Lake Fork Minnesota Creek	2.0	0.2	12.5	Good	—	—	—	—	—	—	—	—	—	—
Leroux Creek	15.8	5.3	3.6	Excellent	—	7	12	—	81	—	89	—	—	11
Middle Fork Spring Creek	6.3	0.7	6.4	Good	—	—	—	—	—	—	—	—	100	—
Minnesota Creek	8.8	0.4	2.4	Good	—	100	—	—	—	—	—	—	—	100
Monitor Creek	19.3	11.2	3.7	Good	—	—	68	6	26	—	100	—	—	—
Muddy Creek	1.7	1.5	1.0	Poor	—	24	7	1	68	—	—	—	—	—
North Fork Escalante Creek	16.7	2.8	2.9	Good	—	—	—	—	—	—	100	—	—	—
N. Fk. Gunnison River No. 2	7.3	3.6	0.7	Good	—	0.5	0.5	—	99	—	—	—	—	—
Potter Creek	21.7	9.8	3.4	Fair	—	—	100	—	—	—	—	—	—	—
Roubideau Creek	42.4	14.6	2.2	Fair	—	—	7	35	36	22	1.3	1.3	96	1.3
Sams Creek	3.8	11.5	13.5	—	—	—	—	—	—	—	—	—	—	—
Short Draw	8.0	3.9	6.6	—	—	—	50	—	50	—	—	—	—	—
Smith Fk. Gunnison R. No. 1	24.9	4.3	1.5	Good	—	—	100	—	—	—	—	100	—	—
Smith Fk. Gunnison R. No. 2	3.1	0.3	2.4	Good	—	100	—	—	—	—	43	57	—	—
South Canal	12.5	5.5	0.6	—	—	30	—	—	70	—	—	—	—	—
Terror Creek	3.4	5.5	7.5	Excellent	—	—	—	—	—	—	—	—	—	100
Uncompahgre River No. 4	13.3	0.5	2.1	Fair	—	20	—	—	80	—	67	17	16	—
West Creek	24.0	5.7	1.8	—	—	30	15	—	55	—	6	32	60	2
West Fork Dry Creek	9.9	6.8	5.2	Good	—	—	—	—	—	—	100	—	—	—
West Fork Spring Creek	5.9	1.2	6.6	Good	—	—	—	—	—	—	—	—	—	—
West Muddy Creek	20.9	1.3	3.7	Poor	?	?	10	32	53	?	100	—	—	—

Source: Colorado Division of Wildlife inventory data base.

## Notes:

<sup>1</sup> Only those streams on public land are included in table.<sup>2</sup> ND = No data available.

**LIVESTOCK GRAZING**

A total of 457,465 acres, or 95 percent, of the public land within the planning area is grazed by domestic livestock. The area is divided into 159 grazing allotments with 132 livestock operators. A total of 38,951 Animal Unit Months (AUMs) of forage is available for domestic livestock use; approximately 23,667 AUMs are used in an average year.

Approximately half of the livestock grazing use is by cattle and half is by sheep. Nearly all of the sheep use is from ewe/lamb operations which use public land for winter grazing from November through mid-March. Cow/calf operations make up the majority of the cattle use although there are also several yearling operations.

Both cattle and sheep operations generally use the public land for spring grazing (May 1 to June 1) enroute to National Forest lands and again in the fall (October 1 through December) enroute to private wintering areas. A few cow/calf operations graze summer-long on public lands contiguous to private pastures.

Appendix B provides allotment-specific data on the livestock grazing program in the planning area.

**FORESTRY**

Of the 191,950 forested acres of public land within the planning area, approximately 3,685 acres of commercial

forest lands and 45,886 acres of pinyon-juniper woodlands are suitable for sustained-yield management as identified by the Timber Production Capabilities Classification (TPCC) Inventory and shown in Table 2-12. Forest lands are classified as suitable if capable of yielding 20 cubic feet of wood products annually under intensive management practices and on a sustained yield basis. (See Appendix C for information on sustained yield calculations.)

Woodlands are classified as suitable if capable of stocking densities greater than 40 percent, crown closures have net annual growth rates often exceeding 20 cubic feet per acre, and slope gradients are less than 35 percent. Stocking levels and age classes of productive forests and woodlands on public lands are shown in Table 2-13 and Table 2-14.

**COMMERCIAL FOREST LANDS**

Geographically, most of the commercial forest lands in the planning area (70 percent) is on the Cimarron Ridge in the Storm King Forest Management Unit (FMU). Isolated stands of suitable commercial forest land occur throughout the planning area.

The annual allowable timber harvest within the planning area is estimated at 300 thousand board feet (MBF). This harvest level is based on a 1975 statewide forest inventory and assumes a 120-year rotation. Timber sales consist of one sale of 100 MBF annually in the High Park Area. Natural reproduction is the basic method of regeneration with limited planting when needed.

Table 2-12

**ACRES OF FORESTS AND WOODLANDS ON PUBLIC LANDS**

	COMMERCIAL FOREST LANDS	WOODLANDS
1. Total acres of forested public land	6,429	185,521
Acres withdrawn from production due to:		
Low site	29	109,297
Fragile site	647	3,357
Fragile slope gradient	2,068	26,981
2. Total acres withdrawn	2,744	139,635
3. Total available production base (Line 1. minus Line 2.)	3,685	45,886
Acres with restricted management practices due to:		
Reforestation problems	495	0
Fragile site	814	0
4. Total acres restricted	1,309	0

## CHAPTER TWO

Market demand is presently oriented toward spruce and aspen with little demand for ponderosa pine. Operation of the Louisiana Pacific Corporation's waferboard plant near Olathe has greatly increased local demand for aspen. Because the aspen resource occurs in small scattered stands, harvesting would be feasible only if the stands were offered in conjunction with larger Forest Service or private tract sales or as small firewood sales.

Table 2-13

### STOCKING LEVELS OF PRODUCTIVE FORESTS AND WOODLANDS ON PUBLIC LANDS

STOCKING LEVEL	COMMERCIAL FOREST	
	LANDS	WOODLANDS
Non-stocked	187	225
Poorly stocked	318	7,866
Medium stocked	775	16,856
Well-stocked	2,405	20,939
<b>TOTALS</b>	<b>3,685</b>	<b>45,886</b>

Table 2-14

### AGE CLASS OF PRODUCTIVE FORESTS AND WOODLANDS ON PUBLIC LANDS

AGE OF STAND	COMMERCIAL FOREST	
	LANDS	WOODLANDS
Non-stocked	187	225
Less than 20 years	5	254
21 to 50 years	14	17,066
51 to 80 years	142	0
81 to 120 years	1,172	439
More than 120 years	2,165	27,902
<b>TOTALS</b>	<b>3,685</b>	<b>45,886</b>

## WOODLANDS

Most of the pinyon-juniper woodlands are on the Uncompahgre Plateau, and stands of Gambels oak occur on the south side of Grand Mesa. No allowable harvest calculations are available for these resources.

Average annual woodland product sales within the planning area include approximately 900 MBF of wood products, 1200 Christmas trees, and 350 transplants. Table 2-15 details types of woodland products sales.

Table 2-15

### AVERAGE ANNUAL WOODLAND PRODUCT SALES ON PUBLIC LAND

PRODUCT	AMOUNT/UNIT	PERMIT TYPE
Posts	6,000 posts	Individual
Fuelwood	1,000 cords	Commercial
	700 cords	Individual
Christmas trees	900 trees	Commercial
	300 trees	Individual
Transplants	350 trees	Commercial

Local demand for fuelwood is increasing, both from individuals and commercial operators. The Forest Service recently placed restrictions on fuelwood cutting on Colorado's Front Range, so additional demand on Western Slope resources is anticipated from the Denver area, as well as from the Vail and Aspen areas.

Many instances of trespass fuelwood harvests are discovered annually. Estimates of fuelwood theft vary from 100 to 500 cords per year.

## RECREATION

The BLM manages two types of recreation situations on public lands. Most of the public lands are managed for dispersed recreation opportunities where recreationists have a freedom of recreational choice with a minimum of regulatory constraints. There are few BLM recreation facilities or supervisory efforts on these lands. Within the planning area, the Escalante Canyon, Needle Rock, Gunnison River, and the adobe hills northeast of Delta are dispersed recreational areas frequented by the public.

## AFFECTED ENVIRONMENT

Recreation opportunities in Escalante Canyon include sightseeing, auto touring, camping, and swimming in a roaded but natural canyon environment. A well-maintained county road provides vehicle access throughout the 15-mile length of the canyon. The BLM has constructed a shelter in the vicinity of Cottonwood Springs. Several drownings have resulted from hazards encountered by the swimming public in the Potholes area of the canyon.

Needle Rock is designated as an Outstanding Natural Area (ONA) due to the high-value scientific, interpretive, and scenic characteristics of this volcanic structure. Recreation opportunities in the 80-acre ONA include sightseeing, picnicking, and geologic study in a roaded but natural environment. The BLM has constructed a shelter and an interpretive nature trail in the area.

Recreation opportunities on an 18-mile portion of the Gunnison River downstream from Delta include sightseeing, boating, fishing, hunting, and camping in a predominantly natural but motorized environment. There are no BLM recreation facilities on these lands. Land status consists of interspersed private and public (BLM) tracts resulting in potential conflicts between recreationists and private landowners.

Recreation opportunities in the Mancos shale adobe hills northeast of Delta include off-road vehicle (ORV) use in badlands dissected by numerous vehicle tracks. The majority of this ORV use is unorganized and by local residents.

In response to issues raised by the public or to resource management concerns, a small portion of the public lands may be managed as a Special Recreation Management Area (SRMA) where major investments in recreation facilities and visitor assistance are made by the BLM. Specific management direction is formulated by the BLM for administration, utilization, and protection of SRMAs. Within the planning area, the Gunnison Gorge is managed as an SRMA.

The Gunnison Gorge SRMA, totalling 64,000 acres, is managed to provide a variety of recreation opportunities and settings. These include whitewater boating, backpacking, fishing, and horseback riding in very natural and roadless settings; vehicle camping and scenic viewing in natural but roaded settings; and ORV activities in badland areas dissected by numerous vehicle tracks. The majority of non-motorized recreation use occurs within the main canyon complex of the Gunnison Gorge. Non-motorized recreationists are infrequent users of the SRMA outside of the main canyon complex.

Whitewater boating and fishing are the dominant recreation activities in the SRMA. Both commercial outfitters and private boaters utilize this whitewater recreation resource. BLM recreation facilities within the SRMA consist

of trailheads, parking areas, maintained roads, signs, picnic tables and shelters, toilets, and hiking and riding trails.

The Gunnison Gorge SRMA was inventoried in 1984 utilizing the Recreation Opportunity Spectrum. This inventory characterizes lands in terms of the types of recreation experiences, activities, and settings that are provided. These opportunities are within a spectrum of six land classes ranging from primitive to modern-urban. The results of this inventory and a listing of management commitments to maintain specific recreation opportunities are outlined in the 1985 Recreation Management Plan for the Gunnison Gorge Recreation Lands.

Storm King Associates, a Montrose based partnership, is proposing development of a destination-style ski area and resort complex on Storm King Peak. Plans include intensive ski facility, commercial, residential, and golf course development involving 1,000 acres of public and 7,000 acres of private lands. Plans also include promotion of skiing, snowmobiling, fishing, mountaineering, tennis, and swimming in the winter; golf, tennis, hiking, camping, hunting, and horseback riding would be offered throughout the remainder of the year.

## CULTURAL RESOURCES

### CULTURAL PERIODS

Human occupation of the general geographic region encompassing the planning area extends from the waning years of the Wisconsin Ice Age, about 10,000 to 20,000 years ago, to the present. Archeological materials recovered from sites within the planning area are representative of the Paleo-Indian, Archaic, Formative, Proto-Historic, and Historic periods.

The humans inhabiting North America during the Paleo-Indian period followed a nomadic way of life based primarily upon hunting now-extinct species of big game. The most concrete evidence of Paleo-Indian presence in the planning area is a single, isolated Clovis projectile point which dates to approximately 11,000 years ago. A number of other sites exhibiting possible Paleo-Indian affiliation are represented as lithic scatters, campsites, and several multi-component rockshelter habitation sites.

Responding to the environmental changes which occurred after the Wisconsin Ice Age, the North American Indians remained nomadic but developed subsistence patterns which emphasized collecting wild plant foods and hunting modern game species. The Archaic Period is well-evidenced in the planning area by numerous projectile points, multi-component open campsites, rockshelters, and abundant lithic scatters.

## CHAPTER TWO

A sedentary lifestyle based upon the cultivation of food crops was developed by many North American Indian groups during the Formative Period. Evidence of this period's subsistence practices is scant within the planning area.

Archeological and linguistic evidence indicates that the Ute Indians entered the region between A.D. 1200 and 1400. Sites believed to represent Ute occupation are numerous throughout the planning area in the form of projectile points, wickiups, open campsites, rock art, and lithic scatters.

The Historic Period began with well-documented Spanish explorations and expeditions in the 1700s. The Spaniards were followed by fur trappers/traders, gold/silver miners, and eventually settlers. Numerous historic sites are located throughout planning area.

### CULTURAL INVENTORIES

Class III cultural resource inventories (100 percent field surveys) have been completed on approximately 14 percent of the public lands within the planning area (69,000 acres). The prehistory of the planning area is not well-documented or clearly understood as a result of the low percentage of surveyed lands. The cultural resource data base for most other lands in west-central Colorado is equally sparse. The BLM typically performs cultural inventories only on public lands involved in proposals for surface-disturbing activities.

### CULTURAL SITES

A total of 2,237 sites have been recorded in the planning area. Of these sites, one petroglyph panel is listed on the National Register of Historic Places (NRHP), 150 sites appear to be eligible for listing, and 1,120 sites are considered potentially eligible for listing but require further analysis to determine their significance.

A majority of the recorded sites are in the area west of Olathe. A lesser number have been recorded along the North Fork of the Gunnison River and also in the Gunnison Gorge WSA. Only a minimal amount of survey work has been done north of Hotchkiss. With the exception of several rock art panels, little is known about the cultural resources in this portion of the planning area.

### PALEONTOLOGICAL RESOURCES

Vertebrate, invertebrate, and botanical paleontological resources (fossils) are known to occur within some of the geologic formations in the planning area, mainly the Morrison, Dakota, Mancos, Mesaverde and Ohio Creek formations. A few fossil occurrences of unknown scientific

value have been encountered during special surveys for the Dominquez Reservoir Project and other major surface-disturbing activities. There have been no major inventories of paleontological resources within the planning area.

A significant fossil quarry is located in the Uncompahgre National Forest, approximately five miles outside the planning area's western boundary. It is present in the Brushy Basin member of the Morrison formation and is considered one of the most important fossil sites of the Late Jurassic Period. The site produced bones of mammals, flying reptiles, birds, and both herbivorous and carnivorous dinosaurs, in sediments believed to be 140 million years old. Based on this site, the Morrison formation has high potential for scientifically significant fossils. Other formations show evidence of fossilization, but the presence of important fossils has not been established.

### VISUAL RESOURCES

Visual resources in the planning area have been evaluated according to visual resource management (VRM) criteria in BLM Manual 8400. Table 2-16 identifies thirty-four areas within the planning area which have important visual resources. Appendix D details the VRM classification process.

### WILDERNESS

There are three WSAs in the planning area: the Camel Back WSA, the Adobe Badlands WSA, and the Gunnison Gorge WSA. Acreage figures for these WSAs were revised for this RMP effort using a computerized mapping system; they vary slightly from the totals used in the final WSA Inventory Report of November 1980.

#### CAMEL BACK WSA (C0-030-353)

The Camel Back WSA is located nine miles southwest of Delta on the eastern slopes of the Uncompahgre Plateau. There are 10,402 acres of public land and 160 acres of private inholdings within the WSA boundary. The WSA is nearly surrounded by public lands and adjoins the Uncompahgre National Forest along its southern border.

Topographic relief in the WSA is a rugged combination of canyons and mesas. Roubideau Canyon, the largest of the canyons, is up to 800 feet deep and one mile wide. Exposed rock layers of tan to reddish colored sandstone form buttes, cliff faces, tallus slopes, and large boulders. Numerous intermittent drainages contribute to the overall ruggedness of the area.

**IMPORTANT VISUAL RESOURCES IN THE PLANNING AREA**

<b>AREA IDENTIFICATION Number and Name</b>	<b>SIZE (acres)</b>	<b>SCENIC <sup>1</sup> QUALITY</b>	<b>VISUAL <sup>2</sup> SENSITIVITY</b>	<b>VIEWING <sup>3</sup> DISTANCE</b>	<b>VISUAL RESOURCE <sup>4</sup> MANAGEMENT CLASS</b>
01 Gunnison Gorge	15,300	A	H	FG	II
02 Outer Gorge Canyon	2,560	A	H	FG/MG	II
03 Gunnison River Canyon	6,400	A	H	FG	II
04 Red Canyon	3,840	B	M	SS	III
05 Smith Fork Canyon	300	B	M	SS	III
06 Jones Draw	2,560	B	H	MG	II
07 Red Rocks	6,080	B	H	FG/MG	II
08 Crawford Reservoir Recreation Area	160	A	H	FG	II
09 Gould Reservoir	440	B	H	FG	II
10 Petrie Mesa	4,800	A/B	H	FG/MG/BG	II/III
11 Adobe Buttes	5,440	A/B	H	FG/MG	II
12 Adobe Basin	2,200	B	H	FG/MG	II
13 Wells Gulch	7,040	B	H	FG	II/III
14 Upper Alkali Creek	3,200	B	H	BG	III
15 Currant and Dry Creek	3,840	B	M	FG/MG	III
16 Minnesota Creek	2,560	B	H	FG	II
17 Lands End Pediment	5,120	B	H	BG	III
18 Ponky Peak	960	B	H	FG	II
19 Needle Rock	80	A	H	FG	II
20 Good Point	3,200	B	H	BG	III
21 Dominguez Creek Canyon	7,040	B	H	SS	III
22 East Fork Escalante Creek	13,440	B	H/M	FG	II
23 Dry Fork Escalante Creek	4,820	B	H	SS	III
24 Cottonwood Creek Canyon	3,200	B	H/M	FG	III
25 Roubideau Creek Canyon	3,200	B	H/M	SS	III
26 Dry Creek Canyon	8,960	B	M	SS	III
27 Spring Creek Canyon	2,560	B	M	SS	III
28 Hells Kitchen	3,200	B	H	BG	III
29 Baldy Peak	520	A/B	H	FG	II/III
30 Storm King	1,640	B	M	MG/BG	II/III
31 Kinikin Heights	4,480	B	M	BG	II/III
32 Billy Creek	5,360	A/B	H/M	FG/MG	II/III
33 Ridgeway Reservoir Recreation Area	1,520	A	H	FG	II
34 North Fork Valley	3,840	A	M/H	FG	II

Notes:

- <sup>1</sup> Scenic Quality: A = Highest Scenic Quality; B = Some Outstanding Scenic Quality.
- <sup>2</sup> Visual Sensitivity: H = High; M = Moderate; L = Low.
- <sup>3</sup> Viewing Distance: FG = Foreground; MG = Middleground; BG = Background; SS = Seldom Seen.
- <sup>4</sup> See Appendix D for an explanation of visual resource management classes.

## CHAPTER TWO

Vegetation in the WSA consists of cottonwood and willow riparian zones in the canyon bottoms, semi-arid grasses and shrubs on the canyon slopes, and scattered pinyon and juniper woodlands on the mesa tops. The federally-listed endangered spineless hedgehog cactus and the candidate Grand Junction milkvetch are known to exist in the area.

Coal development is considered unlikely in the WSA as existing coal seams are of poor quality. No oil and gas exploration drilling efforts have occurred. All known oil and gas drilling efforts within an eight-mile vicinity of the WSA boundary were abandoned after no significant amounts of oil and gas were discovered. Geologic structures in the WSA are considered to have a low favorability for oil and gas accumulation.

No mineral deposits, mining claims, or evidence of mineral development are known to exist within the WSA. Geologic structures in the area are considered to have a low favorability for accumulation of most locatable minerals. A moderate favorability for uranium and vanadium mineralization is considered likely, but no significant concentrations of these minerals were detected during DOE surveys.

Livestock grazing is an established use of the area. The WSA is within two intensively managed livestock grazing allotments where spring and fall cattle use is presently authorized.

The Camel Back WSA is primarily affected by the forces of nature. The few imprints of human use, consisting of several fences, reservoirs, vehicle tracks, and a mine adit, are substantially unnoticeable. Topographic and vegetative screening provide outstanding opportunities for solitude. Diverse vegetation types and scenic topographic features provide outstanding opportunities for primitive and unconfined recreation including hiking, camping, backpacking, and scenic viewing.

### ADOBE BADLANDS WSA (CO-030-370B)

The Adobe Badlands WSA is located three miles northwest of Delta on the southern slopes of Grand Mesa. There are 10,425 acres of public land within the WSA boundary. The WSA adjoins the Grand Mesa National Forest along its northern border.

The WSA is characterized by a badlands topography of highly eroded Mancos shale clay hills. Vegetation in the area is predominantly sparse saltbush and greasewood. A small pinyon and juniper woodland is located on the northern WSA boundary. The federally-listed threatened Uinta Basin hookless cactus is known to exist within the area.

Soils within the WSA are highly saline and easily eroded. Average annual sediment and salinity yields from the WSA to the local watershed are approximately 50,000 tons and from 950 to 1,900 tons respectively.

A total of 21 million tons of high to medium development potential coal occurs within 507 acres of the WSA. No locatable mineral deposits or evidence of locatable mineral development are known to exist within the area. There is recent interest in possible placer deposits within the WSA and the local vicinity. The WSA, however, is considered to have a low favorability for accumulation of locatable minerals.

The four oil and gas wells drilled within or adjacent to the WSA were abandoned after no significant amounts of oil and gas were discovered. A KGS yielding oil and gas is located five miles east of the WSA. Additional KGSs, one showing evidence of oil and the other gas, are located within two miles of the east and west WSA boundary. These KGS, were designated on the basis of one test well each. The wells are presently shut-in. Portions of this oil and gas formation are thought to extend into the WSA and to have a moderate favorability for oil and gas accumulation.

Livestock grazing is an established use of the area. This WSA is within three livestock grazing allotments that are presently managed for sheep grazing during the winter season. There are no major livestock projects within the area.

The Adobe Badlands WSA is primarily affected by the forces of nature. The few imprints of man, consisting of vehicle tracks, are substantially unnoticeable. Rugged topography effectively screens visitors from one another. The variety of form, texture, and color associated with Mancos shale derived soils provides outstanding opportunities for scenic viewing in this badlands environment.

### GUNNISON GORGE WSA (CO-030-388)

The Gunnison Gorge WSA is located ten miles east of Delta. There are 21,038 acres of public land and no private inholdings within the WSA boundary. The southern border of the WSA is contiguous to a designated wilderness area within the NPS-administered Black Canyon of the Gunnison National Monument.

Topographic relief in the WSA is a rugged combination of canyons, ridges, and benches. Gunnison Gorge, the primary canyon in the WSA, is characterized by a steep and narrow inner gorge of dark granite within a wider, upper canyon of tan to reddish sandstone and shale. These two topographic components of the Gunnison Gorge are connected by a level to rolling bench. Four major tributary canyons, numerous intermittent drainages, rock pinnacles, alluvial slopes, boulder piles, and ridges contribute to the overall ruggedness of the area.

This WSA is characterized by diverse plant and animal life. Vegetation consists of cottonwood and willow riparian zones in the canyon bottoms, semi-arid grasses and shrubs on the canyon slopes, and scattered to dense pinyon and juniper woodlands on the benches and ridge tops. The federally-listed threatened Uinta Basin hookless cactus is known to occur within the WSA.

Bald eagles concentrate within the Gunnison Gorge during the winter season. River otters, listed as endangered by the state, were reintroduced into the Gunnison Gorge by the DOW in the late 1970s. In 1986, the DOW reintroduced Rocky Mountain bighorn sheep into the area. Deer and elk and numerous other animal species populate the area.

Coal development within the WSA is considered unlikely as existing coal seams are of poor quality. Geologic structures in the area are not conducive to oil and gas accumulation but are considered to have a moderate favorability for the accumulation of locatable minerals. No locatable mineral deposits are known to exist within the WSA. Lode claims on adjacent lands and several prospects within the WSA indicate some minerals interest in the local area.

Livestock grazing is an established use of all but the inner gorge portion of the WSA. The grazed portions of the WSA are divided between four grazing allotments, where cattle and sheep use during the fall, winter, and spring seasons is presently authorized. There are no major livestock grazing projects within the area.

Diverse vegetative and geologic features, rugged and scenic canyons, and a boatable whitewater river provide outstanding opportunities for primitive and unconfined recreation within the WSA. These recreation opportunities include hiking, backpacking, fishing, whitewater boating, and scenic viewing within a wilderness setting. The high-quality nature of these opportunities is evident in the 1972 BLM Recreation Lands designation for the Gunnison Gorge, the determination that the area is suitable for wild and scenic river status, and the Gold Medal Trout Fishery designation by the DOW.

The Gunnison Gorge WSA is primarily affected by the forces of nature. The few imprints of human use, consisting of several vehicle ways and past mineral activities, are substantially unnoticeable. Topographic and vegetative screening, along with the large size and expanse of this WSA, provide outstanding opportunities for seclusion and solitude.

## LANDS

### LAND STATUS

Land status within the planning area is identified in Table 1-1 (Chapter 1) by ownership, county delineation, and agency administration. A total of 483,077 acres of public land surface within the planning area is administered by the BLM. Federal lands bordering the planning area are administered by the Grand Junction BLM District and the Grand Mesa, Gunnison, and Uncompahgre National Forests Supervisor's Office. The Black Canyon of the Gunnison National Monument and portions of the Curecanti National Recreation Area, both administered by the NPS, are also located within the planning area.

Portions of Delta, Montrose, Gunnison, Ouray, and Mesa counties are located within the planning area. Nearly all Colorado state lands within the area are managed by the DOW and most are within the Billy Creek and Escalante Wildlife Areas. The municipalities of Montrose and Olathe own land adjacent to public land in the Buckhorn Lakes and Dry Creek Basin areas respectively.

### WITHDRAWALS

As required by the Federal Land Policy and Management Act (FLPMA), all withdrawals within the planning area are to be reviewed by 1991 to determine if the statutory objectives of the withdrawals are being met. In addition to this review, all withdrawals held by an agency of the U.S. Department of the Interior (USDI) are subject to continual review.

Table 2-17 identifies the Bureau of Reclamation (BOR) withdrawals within the planning area. These withdrawals segregate lands from land-uses that would introduce conflicts with existing or proposed irrigation water storage facilities and associated hydroelectric developments. The withdrawals segregate the affected lands from operation of the general mining laws. The BLM must consult with the BOR before issuing land-use authorizations on these special project lands.

Public water reserves, totalling 1,884 acres, exist on 49 springs and other water sources. Each reserve typically involves 40 acres and segregates the affected lands from mineral entry and location under the non-metalliferous mining laws. Public water reserves are open to mineral entry, location, and patent for metalliferous minerals and mill sites.

The BLM holds a 25,070 acre withdrawal on lands within the Gunnison Gorge (23,791 acres federal surface/federal minerals; 1,279 acres private surface/federal minerals). The U.S. Fish and Wildlife Service (USFWS) holds a 10-acre mineral withdrawal (Serial Number C-0125430) adjacent to the North Fork of the Gunnison River near Hotchkiss; these lands are managed as the Delta Fish

## CHAPTER TWO

Table 2-17

### BUREAU OF RECLAMATION WITHDRAWALS WITHIN THE PLANNING AREA

WITHDRAWAL NAME	SERIAL NUMBER	GENERAL LOCATION	PURPOSE	ACREAGE WITHIN PLANNING AREA
Fruitland Mesa	C-019088	Fruitland Mesa	Irrigation	20,826
Dominguez Project	C-016609	Gunnison River-Dominguez Canyon area	Irrigation, hydroelectric	17,518
Gunnison/Arkansas Project	C-28255	Crystal Reservoir	Water storage, irrigation, hydroelectric	8,209
Colorado River Storage Project	C-021956	Crystal Reservoir	Water storage, irrigation, hydroelectric	1,721
Dallas Creek Project	C-24996	Ridgway	Water storage, irrigation, hydroelectric	1,025
Paonia Project	C-0102712	Paonia Reservoir	Water storage, irrigation, hydroelectric	859
Uncompahgre Valley Project	C-28264	South Canal, West Canal, Montrose and Delta Canal	Irrigation	494
Paonia Project	C-28258	Hotchkiss-Paonia area	Irrigation	302
Paonia Project	C-088220	Paonia Dam	Water storage, irrigation, hydroelectric	236
Fruitgrowers Dam	C-081296	Fruitgrowers Reservoir	Water storage, irrigation	125
Smith Fork Project	C-28705	Crawford Reservoir	Water storage, irrigation	123

Hatchery. These withdrawals segregate the affected lands from operation of the general mining laws.

#### POWERSITE WITHDRAWALS (INCLUDING FERC)

The BLM has the authority to identify, withdraw, and protect potential waterpower sites. Existing powersite withdrawals, totalling 6,439 acres, are located in six areas associated with the existing Crystal Reservoir and the proposed Dominguez Reservoir project. These powersite reserves and classifications, under jurisdiction of the BLM, withdraw the affected lands from disposal or permanent land-use authorizations that would interfere with or preclude the development of the water power potential. Several of these reserves and classifications occupy the same lands as BOR withdrawals. Powersite withdrawals are listed in Table 2-18.

The Federal Energy Regulatory Commission (FERC) issues preliminary permits and issues licenses for construction of hydroelectric facilities on public land.

Preliminary permits, granted by FERC, are presently in effect in 28 locations involving 677 acres. Preliminary permits are held by hydroelectric developers while feasibility studies are completed on potential hydroelectric development sites. Preliminary permits grant priority to the permit holder over other competing interests in applying for authorizations to construct and operate a new hydroelectric facility on a specific site. The permits are also sought to study the feasibility of new projects, or of adding hydroelectric facilities to existing water projects. Preliminary permits have a three-year term, although the withdrawal and associated constraints continue until vacated by the FERC.

#### CLASSIFICATIONS

Montrose and Delta counties hold sanitary landfill leases on public lands as authorized under the Recreation and Public Purposes Act (R&PP). The present BLM policy is to transfer ownership of all existing landfills on public lands to the lessees and to no longer authorize new R&PP landfill leases. Lands leased by the Paonia Rod and Gun Club for use as a rifle range are also classified under authority of the R&PP Act.

Table 2-18

## POWERSITE WITHDRAWALS WITHIN THE PLANNING AREA

TYPE OF WITHDRAWAL AND NUMBER	SERIAL NUMBER	RESERVOIR LOCATION	ACREAGE OVER-LAPPING BOR WITHDRAWALS	ACREAGE WITHIN PLANNING AREA
Powersite Reserve 495	C-28610	Crystal	1,665	2,495
Powersite Classification 404	C-28656	Dominguez <sup>1</sup>	2,082	2,113
Powersite Classification 392	C-28654	Dominguez	992	1,116
Powersite Reserve 27	C-28590	Crystal	707	715

## Notes:

<sup>1</sup> Dominguez Reservoir is proposed.

In the late 1960s, the majority of the planning area was placed under an interim classification for multiple-use management that closed lands to sale and to appropriation under the agricultural land laws. The Needle Rock Landmark Site (80 acres) and the Crawford Site (160 acres) were also closed by classification to operation of the mining laws. The BLM determined that these interim classifications were no longer necessary after passage of FLPMA. For this reason, all classifications within the planning area were terminated in 1981 with the exception of the Needle Rock Landmark Site and the Crawford Site that remain closed to operation of the mining laws, and 529 acres in Delta County that remain classified for disposal. A more detailed description and analysis of the classification and multiple use program is in Appendix E.

## SPECIAL DESIGNATIONS

The 80-acre Needle Rock area was designated as an Outstanding Natural Area (ONA) in 1968 to protect the area for public recreational purposes. In 1972 the BLM designated the Gunnison Gorge as Recreation Lands to facilitate recreation use and preserve recreation values. Both of these areas were withdrawn from mineral location and entry.

Legislation that would designate the Gunnison Gorge as part of a larger national recreation complex was introduced in Congress in 1986 and is currently under consideration. Up to 70,450 acres of public lands administered by the BLM and 61,800 acres of lands administered by the NPS are included in this proposal. No administrative transfers of land between the two agencies are proposed.

## LAND USES

Demands for rights-of-way and similar land-use authorizations are most prevalent in coal development areas and the vicinities of communities, rural homesites, and private inholdings. Typically, the UBRA processes six requests for rights-of-way, temporary use permits, or other land-use authorizations annually to facilitate coal development in the Paonia and Somerset areas. An average of 20 right-of-way applications involving non-coal related utility and access needs throughout the planning area are also processed annually. Land management problems in the planning area often involve unauthorized trash dumping and occupancy and agricultural trespasses.

There are numerous utility rights-of-way throughout the planning area. Electrical transmission lines are identified in Table 2-19. These facilities are identified in the 1980 Western Regional Utility Corridor Study. Future development of a 115 kv electrical transmission line is anticipated in the Delta and Paonia areas. A six-inch natural gas pipeline is located on public lands adjacent to the Transfer Road southwest of Olathe. Irrigation systems, municipal water supply facilities, rural water distribution pipelines, and spring development pipelines occupy rights-of-way throughout the planning area. Communication facilities managed for multiple users are located on public lands in seven locations.

## LAND TENURE

Since 1984, six public land tracts totalling 300 acres have been sold under land disposal authorities. The Montrose BLM District is participating in a land exchange program

**CHAPTER TWO**

**Table 2-19  
MAJOR POWERLINE CORRIDORS WITHIN THE PLANNING AREA**

<b>POWERLINE SIZE</b>	<b>OWNER <sup>1</sup></b>	<b>GENERAL CORRIDOR ROUTE</b>
345 kv	CUEA	Craig Coal Fired Generation Plant to Montrose Substation to Shiprock, New Mexico (presently under construction).
230 kv	BOR	Rifle Substation to Curecanti Substation to Shiprock, New Mexico.
115 kv	CUEA	For DMEA; Hotchkiss to Juanita Substation.
115 kv	CUEA	For DMEA; Hotchkiss to North Montrose.
115 kv	CUEA	Grand Junction to Montrose Substation.
115 kv	WAPA	Montrose to Curecanti Substation.
115 kv	CUEA	Montrose Substation to Nucla Substation.
69 kv		No 69 kv powerlines in planning area.
7.2 kv 12.5 kv 46 kv	DMEA & SMPA	Distribution powerlines throughout the planning area.

Notes:

<sup>1</sup> CUEA = Colorado Ute Electric Association; BOR = Bureau of Reclamation; DMEA = Delta-Montrose Electric Association; WAPA = Western Area Power Administration; SMPA = San Miguel Power Association.

with other government agencies and interested parties to facilitate land exchanges. Lands and interests in lands have been acquired by the BLM within the planning area in order to meet specified management goals. Typical criteria used by the BLM for these acquisitions are identified in Appendix E.

**ACCESS**

Table 2-20 lists the miles of roads and trails within the planning area that are identified on the Montrose BLM District Transportation Plan. Lack of legal access and poor road conditions are factors limiting access to public lands. Numerous roads in the planning area require easement acquisition for access to public land tracts to be legal. The BLM actively acquires legal access as needs and opportunities arise. All forms of access acquisition are considered including negotiated easements, cooperative right-of-way agreements, and exchange.

**Table 2-20  
MILES OF ROAD AND TRAIL ACCESS  
WITHIN THE PLANNING AREA THAT ARE  
IDENTIFIED ON THE TRANSPORTATION PLAN**

<b>TYPE OF ACCESS</b>	<b>APPROXIMATE MILEAGES</b>
Federal and State highways	240
County roads	427
BLM roads	369
Unmaintained roads	1,054
Foot and horse trails	46

Many roads in the planning area are in poor condition due to the poor quality of soils in the road location, and to the use of roads during saturated soil conditions when they are most susceptible to damage. The majority of foot and horse trails within the planning area are in the Gunnison Gorge and Escalante Canyon areas.

## AFFECTED ENVIRONMENT

Table 2-21

### POPULATION CENTERS OF SOUTHWESTERN COLORADO

## FIRE MANAGEMENT

The BLM is responsible for protecting public resources from fire and for suppressing fires on public land. Between 1975 and 1984 there were 172 fires (an average of 17 fires per year) on public lands within the planning area.

Eighty-three percent of the fires on public lands were caused by lightning, mostly in the pinyon-juniper vegetation type. Lightning-caused fires generally occur in the summer from mid-June through mid-September. Most human-caused fires occur in late spring or late fall.

Only nine fires (5 percent of the total) were ten acres or larger in size. Of these larger fires, five were human-caused. The three largest fires (burning 136, 200, and 400 acres) were started when individuals burning brush and debris on their private lands allowed the fires to escape to public lands.

## SOCIAL AND ECONOMIC CONDITIONS

The planning area is comprised of substantial portions of four Colorado counties (Delta, Montrose, Ouray, and Gunnison) and a minimal portion of Mesa County. For the purposes of this analysis, that portion of Mesa County within the planning area is assumed to effect the economy of Delta County. Social values in this area are also characteristic of Delta County.

## SOCIAL CHARACTERISTICS

Social values and lifestyles within the planning area are very similar to those found in most of western Colorado. Agriculture (ranching, farming, and fruit production) is the primary land use, and commercial support services are located in towns. Slow, controlled growth is generally accepted. Lifestyles are primarily rural, and a high value is placed on independence, open space, and outdoor recreational opportunities.

The total population of southwestern Colorado was estimated at 87,000 residents in 1970; in 1980 there were an estimated 100,000 residents. The total 1982 population of the counties within the planning area was approximately 62,400. The largest population centers in southwestern Colorado are listed in Table 2-21. The city of Grand Junction (population 28,144) lies just outside of the planning area and is the largest population center in western Colorado.

POPULATION CENTER	POPULATION	
	1970	1980
Delta	3,694	3,925
Durango	10,333	10,450
Gunnison	4,613	5,780
Montrose	6,496	8,668

## ECONOMIC RESOURCES

Population, per capita income, and employment figures for the years 1970, 1980, and 1982 for Colorado and each county within the economic planning area are shown in Table 2-22. Population growth occurred in each county, with Delta and Montrose counties realizing the greatest increases. Substantial growth occurred in employment and per capita income over this 12-year period, despite some reductions in employment in Montrose County and loss of per capita income in Delta County between 1980 and 1982. Per capita income in each of the counties in the planning area is almost 33 percent lower than the Colorado average.

Personal income for each county in the planning area from major sources is shown in Appendix F, Table F-1. Government, mining, and retail trade are the three major sources of income in the planning area, followed by construction, manufacturing, and finance/insurance/real estate.

## Income from Mineral Production

The majority of the mineral production within the planning area has involved private mineral estate. In 1985, coal production from Delta and Gunnison counties was 2.2 million tons with a 1985 value of \$55 million. Optimistic annual coal production forecasts for this area range from 4.5 to 7.35 million tons for the years 1990 to 2000. Recent production of mineral materials within the planning area is described in Table 2-23.

## Income from Agriculture and Livestock Grazing

Livestock and crop production is the principal agricultural activity in both Montrose and Delta counties. The primary crop is predominantly hay in both counties and fruit (apples,

Table 2-22  
POPULATION, EMPLOYMENT, AND PER CAPITA INCOME WITHIN THE PLANNING AREA

COUNTY	POPULATION			EMPLOYMENT			PER CAPITA INCOME <sup>1</sup>		
	1970	1980	1982	1970	1980	1982	1970	1980	1982
Delta	15,316	21,419	23,648	5,113	7,413	8,003	\$5,573	\$8,495	\$8,481
Gunnison	7,714	10,930	10,940	2,693	5,376	5,586	4,592	7,529	8,019
Montrose	18,357	24,656	25,747	6,803	10,447	10,359	5,891	7,984	8,543
Ouray	1,543	1,904	2,055	902	765	792	6,987	9,366	9,623
TOTALS	42,930	58,909	62,390	15,511	24,001	24,740	\$5,584	\$8,131	\$8,463
COLORADO	2,207,259	2,889,735	3,071,006	869,534	1,399,733	1,608,368	\$8,303	\$11,972	\$12,627

Source: Bureau of Economic Analysis.

Notes:

<sup>1</sup> Per capita income is in 1983 dollars.

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Table 2-23  
MINERAL MATERIAL PRODUCTION WITHIN THE PLANNING AREA

MINERAL MATERIAL	1985		1986	
	PRODUCTION (units)	VALUE (dollars)	PRODUCTION (units)	VALUE (dollars)
Moss rock	123 tons	\$ 769	71 tons	\$ 444
Rip-rap	19,670 cu.yds.	8,261	19,670 cu.yds.	8,261
Fill dirt	300 cu.yds.	126	0	0
Sand and gravel	95,000 cu.yds.	38,000	95,000 cu.yds.	38,000
TOTAL VALUE		\$ 47,156		\$ 46,705

**AFFECTED ENVIRONMENT**

peaches, cherries, pears) in the North Fork area in Delta County. Total net farm proprietors income for livestock and crop earnings in 1984 was \$3,127 for Montrose County and \$3,644 for Delta County. Total agricultural revenue generated in both counties is shown in Table 2-24.

Table 2-24

**AGRICULTURE EARNINGS IN 1984**

COUNTY	LIVESTOCK PRODUCTS	CROPS	TOTALS
(thousands of dollars)			
Montrose	\$30,557	\$9,598	\$40,155
Delta	\$12,709	\$6,382	\$19,091

Source: Bureau of Economic Analysis, 1984.

Approximately 155,000 cattle and 73,000 sheep graze in the planning area. Thirty-nine thousand (39,000) AUMs, valued at \$296,400 (USDA/USDI Draft 1985 Grazing Fee Review and Evaluation Report), are grazed annually from public lands in the planning area. At a rate of \$1.35 per AUM (1986 value), annual federal revenue from the sale of this forage is approximately \$52,000. Table 2-25 shows the average (1980-1982) numbers of livestock grazed on both federal and non-federal lands in the planning area.

Table 2-25

**LIVESTOCK NUMBERS BY COUNTY**

COUNTY	CATTLE	SHEEP
Delta	41,333	24,666
Gunnison	40,833	133
Montrose	56,000	47,333
Ouray	16,333	866
<b>TOTALS</b>	<b>154,499</b>	<b>72,998</b>

Source: Agricultural Statistics, Colorado Department of Agriculture, 1982

Note: Figures are 1980-1982 averages.

**Income from Forest Production**

Complete data are not available for forest production in the planning area. An estimated level of productivity for 1984 is about 19 million board feet of timber, valued at \$200,000. Approximately one million board feet, valued at \$27,000 in federal revenues, is attributed to public lands in the planning area. Sales of forest and woodland products from public lands in the planning area is steadily increasing. Annual federal revenues from sales of forest products range from \$7,710 in 1981 to \$40,100 in 1986. Table 2-26 is a detailed listing of forest product sales in the planning area.

Table 2-26

**FEDERAL REVENUES GENERATED FROM THE FOREST RESOURCES ON PUBLIC LANDS IN THE PLANNING AREA**

YEAR	TIMBER	FUELWOOD/ POSTS	CHRISTMAS TREES	WILDINGS/ TRANSPLANTS	TOTALS
1981	\$ 1,320	\$ 4,919	\$ 1,201	\$ 270	\$ 7,710
1982	0	8,832	1,737	2,208	12,777
1983	859	9,228	2,019	713	12,819
1984	1,328	17,102	1,425	810	20,665
1985	1,098	14,899	3,738	1,671	21,406
1986	9,689	22,024	7,418	969	40,100
<b>TOTALS</b>	<b>\$ 14,294</b>	<b>\$ 77,004</b>	<b>\$ 17,538</b>	<b>\$ 6,641</b>	<b>\$ 115,477</b>

## CHAPTER TWO

The Louisiana Pacific Corporation contributes 300 jobs, valued at approximately \$4 to \$5 million to the local economy, from its wafer board manufacturing plant near Olathe in Montrose County (Byers 1986). Approximately 5 percent of the 17 million board feet of timber used by the plant is from public lands with the remainder coming off private lands.

### Income from Recreation

Specific recreational use figures are available for the Gunnison Gorge Recreation Area. Most of the use of the area is whitewater boating, fishing, ORV use, and camping. It has been estimated that over 6,000 recreation visitor days (RVDs), generating annual expenditures of \$940,000, are attributable to the recreation area.

The remainder of the planning area also derives significant benefit from expenditures made for recreational activities. Many of these activities (hiking, camping, backpacking, and ORV use, etc.) are not presently quantifiable. Economic data specific to fishing, hunting, and generalized tourist travel in the area is available.

Fishing activity in the planning area accounted for 166,000 RVDs in 1981. Fishing occurred at significant levels in all counties and contributed expenditures of approximately \$33.2 million (1983 dollars) to the economy (McKean 1983). Approximately 55,000 RVDs and \$11.1 million of the fishing-related expenditures can be attributed to public lands in the planning area. See Appendix F, Table F-2 for estimated fishing expenditures and RVDs.

Hunters spent 372,000 RVDs in the planning area in 1982. Hunting occurred at significant levels in all counties and contributed expenditures of about \$37 million (1983 dollars) to the economy. Approximately 100,000 RVDs and \$10 million of the hunting-related expenditures are attributed to public lands in the planning area. See Appendix F, Table F-3 for estimated hunting expenditures and RVDs.

Tourism in the planning area generates significant levels of both income and employment. Tourism expenditures for 1980 are estimated at \$72 million (1983 dollars) and were responsible for over 2,000 jobs. See Appendix F, Table F-4 for estimated tourism expenditures.

**CHAPTER THREE**  
**MANAGEMENT ALTERNATIVES**

# CHAPTER THREE

## MANAGEMENT ALTERNATIVES

Four land use management alternatives were developed for the public lands in the Uncompahgre Basin Planning Area: the Continuation of Current Management Alternative, the Production Alternative, the Conservation Alternative, and the Preferred Alternative. This chapter describes each of these alternatives. Maps illustrating each alternative are provided for use with the narrative.

Under the Continuation of Current Management (or No Action) Alternative, multiple-use management of the public land resources would continue much the same as at present. Policies and decisions made in existing land use plans would continue to be implemented.

Under the Production Alternative, production and development of resources and resource uses such as mineral leasing and livestock grazing would have priority over protection of resources and resource uses such as wilderness and recreation. In contrast, management priority would be reversed under the Conservation Alternative, with conservation and protection of wilderness and other sensitive resources taking precedence over production and development.

Under the Preferred Alternative, public land resources would be managed to provide for both production/development and conservation/protection. Where production/development is proposed, other resources would be protected as much as possible by placing stipulations and limitations on uses such as mineral leasing, off-road vehicle use, and livestock grazing. Where conservation/protection is proposed, production and development could sometimes be allowed although stringent measures would be taken to protect sensitive resources.

### ALTERNATIVE DEVELOPMENT

The Continuation of Current Management Alternative was developed using available inventory data, existing resource programs and planning documents, established land use allocations, and current management policies.

The Production Alternative and the Conservation Alternative were developed through a process that first determined the range of resource capability levels (from least optimistic to most optimistic) for each affected resource, and then used that information to rank the resources

according to their ability to meet each alternative's management goals and objectives.

To develop the Production and Conservation alternatives, the resource that was ranked highest took precedence over all other resources for management priority, the second-ranked resource took next precedence, and so on. Resource program functions which are of a support nature were considered in alternative formulation but they did not effect resource ranking.

Where conflicts between resources could potentially occur, priority was given to the resource with precedence under that particular management alternative (Production or Conservation). Certain resources, i.e. oil and gas and wilderness, received overriding priority in conflict resolution in situations where, by law or regulation, management of other resources could not interfere with development of existing rights.

The potential for multiple-use was also considered in conflict resolution. For example, timber management and harvest in an area could, under certain circumstances, be compatible with critical deer winter range if specific management practices were followed. Because of this potential compatibility, management described for a particular resource may differ from alternative to alternative.

The Preferred Alternative was developed based on analysis of the environmental impacts of the other alternatives, issues raised throughout the planning process, specific environmental values and resource uses, conflict resolution, public input, and laws and regulations.

### MANAGEMENT UNITS

According to the BLM's basic legislation, any particular land area and its resources may have the potential for a variety of uses, some of them mutually exclusive. The BLM's major objective is to manage the public lands under a multiple-use philosophy and to provide maximum public benefits through the best combination of uses for which an area is capable.

Under each management alternative developed in this RMP/EIS, the planning area has been divided into management units based on the resources, uses, and values of the public lands within a particular geographic area and relative to the goals and objectives of each alternative. The

## CHAPTER THREE

size, number, and configuration of management units varies by alternative.

Although each management unit would be managed under the multiple-use concept, its most outstanding resources, uses, or values would be given significant consideration in that improper management could impair or cause loss of those specific qualities. In recognition of this potential for loss or impact, the management unit prescriptions may place constraints on opposing/competing resources, uses, or values within the unit. In most cases, these other resources would be managed to the extent that such management would be compatible with the unit's more significant resources, uses, or values. In addition, future proposals would be evaluated in the context of the unit's management philosophy.

Public lands within the planning area where no particular resource, use, or value is outstanding, and where management would be minimal, are considered to be general resource management units.

### OFF-ROAD VEHICLE DESIGNATIONS

Each alternative establishes areas which would be designated as open or closed to off-road vehicle use, or where vehicle use would be limited to designated roads or trails. All off-road vehicle designations made in the RMP Record of Decision will be final and implemented as stated.

Maps of the off-road vehicle designations under each alternative are provided in Appendix G. Additional maps showing the specific roads and trails that would be designated as open in areas where vehicle use would be limited to designated road and trails are available from the Montrose BLM District Office (address and phone number are on this document's cover letter).

### CONTINUATION OF CURRENT MANAGEMENT ALTERNATIVE

The objective of the Continuation of Current Management Alternative is to continue multiple-use management of the public lands within the planning area with emphasis on maintaining current levels and methods of resource management, utilization, and protection. Management direction would be based on current policies and decisions in existing land use plans.

All actions proposed under this alternative would comply with current state and federal regulations, standards, and policies. No major policy adjustment would occur and funding would continue at essentially current levels.

*Some resource management programs would be standard throughout the planning area under the Continuation of Current Management Alternative. Unless changes in or additions to standard management directions are specifically addressed in the management prescription for each management unit, these resources, programs, and activities would be managed as follows.*

**Air Quality.** Activities and projects on public land would comply with applicable local, state, and federal air quality regulations. Mitigation to minimize air quality degradation would be incorporated into project proposals as appropriate.

**Coal.** Federal coal estate would be identified as acceptable for further leasing consideration.

**Oil, Gas, and Geothermal Resources.** Federal oil, gas, and geothermal resources would be open to leasing with standard lease terms. All no surface occupancy and seasonal stipulations would apply to federal lands. Seasonal stipulations prescribed for the management units would also apply to seismic and drilling activities. The most reasonable foreseeable level of oil, gas, and geothermal development throughout the planning area would involve a maximum of ten applications to drill per year, with an estimated total of 30 acres of surface disturbance.

**Locatable Minerals.** All existing mineral withdrawals would be recommended for retention. Federal mineral estate in areas not under withdrawal would be open to entry and location.

**Mineral Materials.** Federal mineral estate would be open to disposal of mineral materials. Areas currently withdrawn and closed to mineral location would be closed to disposal of mineral materials, unless approval for disposal is obtained from the agency reserving the withdrawal.

**Soils and Water Resources.** Water quality and erosion conditions would be inventoried and monitored. Measures designed to minimize erosion and water quality deterioration would be required in plans for surface-disturbing land use activities.

**Riparian Zones.** Riparian zones would be inventoried and monitored where necessary to provide information for proper management. Vegetation conditions and streambank cover would be maintained. Measures designed to minimize site-specific riparian deterioration would be required in plans for surface-disturbing land use activities.

**Threatened and Endangered Species.** Threatened and endangered species and unique plant associations would be inventoried and monitored where necessary to provide information for proper management. Clearances would be conducted on all proposed surface-disturbing activities and the USFWS would be consulted as required. Measures designed to protect threatened and endangered species and their habitat would be required in all land use activity plans.

## CONTINUATION OF CURRENT MANAGEMENT

Supplemental releases and reintroduction of federal and state listed endangered, threatened, and candidate species could be authorized following environmental analysis and consultation with the USFWS, the Colorado DOW, and other affected parties.

**Wildlife Habitat.** Wildlife forage allocations would be managed at current levels based on the Uncompahgre Basin Grazing ES until studies determine adjustments are needed to achieve management objectives. Additional forage allocations would be divided equally between wildlife and livestock grazing. Wildlife habitat monitoring studies would be established and/or maintained on all crucial winter ranges. The planning area would be open to land treatments and project facility development. Existing wildlife facilities and land treatments would be maintained. Supplemental releases and reintroduction of native or naturalized fish and wildlife species (excluding federal or state listed endangered, threatened, or candidate species) could be authorized by the District Manager following environmental analysis.

**Livestock Grazing.** Suitable public lands would be available for livestock grazing use. Livestock utilization would be managed at current forage allocation levels based on the Uncompahgre Basin Range Management Program and Rangeland Program Summary (RPS) updates. New or additional available forage would be divided equally between livestock and wildlife. Existing livestock facilities and land treatments would be maintained. New facilities or land treatments would be constructed or implemented if needed to achieve AMP objectives. Vegetation condition and trend monitoring studies would be established and/or maintained. Allotment categorization would determine management and monitoring intensity. Existing Allotment Management Plans (AMPs) would be updated as needed and new AMPs would be developed.

**Forestry.** Suitable commercial forest lands and pinyon-juniper woodlands would be managed for sustained yield production within the allowable cut restrictions determined by the TPCC inventory.

**Recreation.** Public lands would be managed for extensive recreational use. No major recreation facilities would be developed but recreation use would occasionally be monitored.

**Off-Road Vehicles.** Public lands would be open to ORV use.

**Cultural Resources.** Cultural and historical resources would be inventoried. Clearances would be conducted on sites of all proposed surface-disturbing activities. Measures designed to protect significant cultural and historical resources would be required in all land use activity plans.

**Paleontological Resources.** Paleontological resources would be inventoried and appropriate protective measures would be developed if necessary.

**Visual Resources.** Public lands would be managed under current VRM classifications and guidelines.

**Wilderness.** No WSAs, or portions thereof, would be recommended as suitable for wilderness designation.

**Major Utilities.** Public lands would be open to development of major utility facilities. Stipulations and mitigating measures would be developed on a case-by-case basis.

**Powersite Withdrawals.** Pending determination of potential, existing powersite withdrawals would be maintained. These lands would not be subject to further consideration for disposal. No significant long-term investment would be made on these lands unless the investment could be recovered prior to development.

**Acquisition of Access.** In addition to the specific access needs identified in the management unit prescriptions, the access needs identified in the resource area's transportation plan would be acquired as opportunities arise.

**Fire Management.** Public lands would be managed for complete and immediate wildfire suppression, with consideration given to cost-effectiveness and safety. The following management prescriptions comprise the Continuation of Current Management Alternative. Acreage figures used in this discussion are approximations. Table 3-1 identifies the management units that were established for this alternative.

## DISPOSAL OF PUBLIC LANDS

A total of 19 tracts of public land totalling 830.25 acres would be identified for consideration for disposal through sale or exchange under this alternative. Existing R&PP classifications on two of these tracts would be lifted prior to disposal.

Prior to disposal, resources within identified tracts would be managed according to the management prescription for the management unit in which they are located. Minimal funds, if any, would be spent for improvements on these lands. Federal mineral estate would be conveyed with surface estate where it would be in the public interest.

## MANAGEMENT UNIT A-1

### *20,960 Acres of Public Surface; 4 percent of the Planning Area*

Management Unit A-1 consists of 47,400 acres of federal coal estate. A 20,960-acre portion of this federal coal estate underlies federal surface estate. The management unit incorporates existing coal leases with available and adjacent emergency or maintenance coal lease zones to accommodate future coal lease expansions.

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Table 3-1  
MANAGEMENT UNITS:  
CONTINUATION OF CURRENT MANAGEMENT ALTERNATIVE

MANAGEMENT UNIT	ACRES OF PUBLIC SURFACE	PERCENTAGE <sup>1</sup> OF THE PLANNING AREA	IMPORTANT RESOURCES, VALUES, OR LAND USES
A-1	20,960	4%	Coal, wildlife habitat
A-2	266,255	55%	Livestock grazing, wildlife habitat, woodlands
A-3	61,067	12%	Recreation, T&E species, soils
A-4	80	Less than 1%	Recreation, scientific values
A-5	140	Less than 1%	Recreation, wildlife habitat
A-6	134,575	28%	General land uses

<sup>1</sup> Percentages are rounded to whole numbers.

The management unit would be managed for both existing and potential coal development. Development of existing coal leases would continue, and unleased federal coal would be identified as acceptable for further coal leasing consideration with a minimum of multiple-use restrictions. Activities and land uses that are consistent with maintaining existing coal operations and the potential for coal development would be permitted.

**Oil and Gas.** Federal oil and gas estate would be open to leasing. A seasonal stipulation on seismic and drilling activities on crucial deer and elk winter range (1,985 acres) would be in effect from December 1 through April 30 to reduce stress on wintering deer and elk.

**Wildlife Habitat.** Feasible measures to protect the quantity and quality of riparian habitat would be incorporated into coal development plans.

**Livestock Grazing.** Public lands would be managed as "I" category (17,048 acres), "M" category (1,187 acres), or "C" category (3,384 acres) grazing allotments.

**Forestry.** All commercial forest lands and pinyon-juniper woodlands that are suitable for harvest would be managed for sustained yield production within allowable cut restrictions determined by the TPCC inventory.

**Visual Resources.** Public lands totalling 6,340 acres would be managed as VRM Class II; 2,110 acres as VRM Class III; and 10,970 acres as VRM Class IV.

**Major Utilities.** Public lands would be open to development of major utility facilities. Protection of utility facilities would not be required in development of coal leases that pre-date utility installation.

**Acquisition of Access.** Public access would be acquired into the Storm King and High Park areas for forest management and recreation purposes.

### MANAGEMENT UNIT A-2

#### *266,255 Acres of Public Surface; 55 percent of the Planning Area*

Management Unit A-2 consists of 266,255 acres of public land located throughout the planning area. The management unit is used extensively for livestock grazing; it also provides a great deal of deer and elk winter habitat, some of which is considered to be crucial. Some highly productive woodlands exist within the management unit, and the area is also utilized for recreational hunting.

Public lands within the management unit would be managed as "I" category grazing allotments. Livestock grazing use would be managed at current forage allocation levels based on the Uncompahgre Basin Range Management Program and RPS updates. Livestock numbers would be adjusted when forage utilization studies indicate changes are necessary to achieve AMP objectives.

The management unit would be managed to improve vegetation conditions and forage availability for livestock grazing. Land treatment projects and other facilities designed to improve livestock forage and distribution would be developed. Intensive monitoring studies would be established and maintained on all grazing allotments. Existing AMPs would be updated as needed and new AMPs would be developed for allotments without plans. Relinquished,

## CONTINUATION OF CURRENT MANAGEMENT

cancelled, or acquired livestock grazing permits would be reissued according to regulations.

**Oil, Gas, and Geothermal Resources.** Federal oil, gas, and geothermal estate on 135,305 acres would be open to leasing with standard lease terms. Seasonal stipulations on seismic and drilling activities would be in effect on 130,950 acres to protect crucial deer and elk winter range.

**Locatable Minerals.** Federal mineral estate would be open to location and entry with the exception of 17,880 acres currently withdrawn from mineral activity.

**Mineral Materials.** Federal mineral estate would be open to disposal of mineral materials with the exception of 17,880 acres currently withdrawn from mineral activity.

**Riparian Zones.** Aquatic conditions on approximately 3,520 acres of riparian zone would be improved through decreased utilization and trampling.

**Wildlife Habitat.** Shrub species composition would be maintained. Production of browse and forb species would be increased. Browse condition classes would be improved in both crucial and non-crucial ranges. Terrestrial habitat monitoring would continue and aquatic habitat studies would be established.

**Forestry.** Commercial forest lands and pinyon-juniper woodlands that are suitable for harvest would be managed for sustained yield production within the allowable cut restrictions determined by the TPCC inventory.

**Acquisition of Access.** Public access would be acquired into the Roatcap-Jay Creek, McDonald Mesa, Spaulding Peak/Dry Creek, and Linscott Canyon areas for recreation, woodland management, and administrative purposes. Public trail (foot) access would be acquired on the lower McCarty Trail in Escalante Canyon to provide access to the Dominguez WSA.

### MANAGEMENT UNIT A-3

#### *61,067 Acres of Public Surface; 12 percent of the Planning Area*

Management Unit A-3 consists of the 61,067 acres of public lands surrounding and including the Gunnison Gorge. The management unit is characterized by a diversity of landscapes and high-value recreation opportunities. The need to protect both the quality and diversity of recreation opportunities and to facilitate recreation use would be recognized as important during the formulation of management decisions affecting the area.

The management unit would be managed as the Gunnison Gorge Special Recreation Management Area (SRMA). Maps, interpretive materials, and facilities would be developed. Recreation use would be monitored and possibly

restricted as necessary to protect natural features and recreation opportunities.

The canyon portion of the Gunnison Gorge (21,038 acres) would be managed for non-motorized recreation in a predominantly natural environment. River use on the Gunnison River would be managed for a maximum of six to ten group encounters per day to maintain an uncrowded and natural river environment. No more than two commercially-outfitted overnight trips would be permitted per day.

A total of 25,584 acres of public lands in the Peach Valley, Elephant Skin Wash, and Black Ridge areas would be managed for ORV recreation opportunities. A minimum of restrictions would be placed on surface-disturbing activities and a high concentration of recreation users would be permitted within these areas.

Motorized access to the remainder of the management unit (14,445 acres) would be restricted to designated roads, the majority of which are primitive in character. This area would be managed to maintain a predominantly natural environment with low but evident human concentrations and impacts.

**Oil and Gas.** Federal oil and gas estate would be open to leasing. A seasonal stipulation on seismic and drilling activities would be in effect from December 1 through April 30 on 3,450 acres of crucial deer and elk winter range. Each lease application or offer to lease would be reviewed on an individual basis to determine whether or not to lease or if any special stipulations are needed.

**Locatable Minerals.** Federal mineral estate would be open to entry and location with the exception of 24,000 acres currently withdrawn from mineral activity.

**Mineral Materials.** Federal mineral estate in areas not withdrawn from mineral activity would be open to disposal of mineral materials.

**Soils and Water Resources.** Public land in the Elephant Skin Wash area (2,370 acres) would be managed to control salinity in the local watershed. Diversion dams and ponding dikes would be constructed and maintained in the project area.

**Threatened and Endangered Species.** The federally-listed threatened Uinta Basin hookless cactus and two candidate plants, the Delta lomatium and the Montrose penstemon, would be protected from surface-disturbing activities. Suitable habitat would be provided for the federally-listed endangered bald eagle and the state-listed endangered river otter.

**Wildlife Habitat.** Suitable habitat within the gorge would be managed for maintenance of approximately 150 bighorn sheep.

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**Livestock Grazing.** Public lands would be managed as "I" category (53,748 acres), "M" category (1,130 acres), and "C" category (1,532 acres) grazing allotments.

**Forestry.** A 1,255-acre portion of the 2,500 acres of harvestable woodlands within the management unit would be available for management and harvest. These available woodlands are located on Black Ridge. The remaining harvestable woodlands (1,245 acres) would be managed for scenic and relic-area values.

**Off-Road Vehicles.** Vehicle use would be allowed on the 25,584 acres that are suitable and utilized for ORV recreation; would be limited to designated roads and trails on 17,378 acres of scenic slopes and woodlands; and would not be permitted on 21,038 acres of rugged and roadless canyons.

**Visual Resources.** Public lands totalling 21,500 acres would be managed as VRM Class II; 4,800 acres as VRM Class III; and 37,700 acres as VRM Class IV.

**Major Utilities.** A 40,029-acre portion of the management unit would be open to development of major utility facilities; design stipulations may be required to protect scenic values. The remaining 21,038 acres, located within the Gunnison Gorge, would be closed to major utility development.

**Acquisition of Non-Federal Lands.** A total of 2,100 acres of non-federal lands would be identified for acquisition to facilitate public access and enhance recreational values.

### MANAGEMENT UNIT A-4

#### *80 Acres of Public Surface; less than 1 percent of the Planning Area*

Management Unit A-4 is an 80-acre site consisting mainly of a volcanic structure with high-value scientific, interpretive, and scenic characteristics. A shelter facility and interpretive nature trail have been developed in the area. Needle Rock is part of the Colorado Natural Areas Program and is one of the significant public land geologic features in Colorado as identified by the BLM's Geologic Advisory Group.

The management unit is currently designated as the Needle Rock Outstanding Natural Area (ONA). This designation precludes surface-disturbing activities that are not consistent with management of the area for natural, scenic, and educational values. The area would be managed to protect these values and for recreation opportunities (sightseeing, picnicking, and geologic study) in a roaded but natural environment. The ONA designation would be retained and a management plan would be developed.

**Oil and Gas.** Federal oil and gas estate would remain open to leasing with a no surface occupancy stipulation.

**Locatable Minerals.** Federal mineral estate would remain withdrawn from mineral activity.

**Mineral Materials.** Federal mineral estate would be closed to disposal of mineral materials.

**Livestock Grazing.** The management unit would remain unallotted for livestock grazing use.

**Visual Resources.** The management unit would be managed under VRM Class I guidelines.

**Major Utilities.** The management unit would be closed to development of major utility facilities.

### MANAGEMENT UNIT A-5

#### *140 Acres of Public Surface; less than 1 percent of the Planning Area*

Management Unit A-5 consists of 140 acres of public land approximately 12 miles east of Delta at the confluence of the North Fork of the Gunnison River and the Gunnison River. Most of this land was purchased with Bureau of Reclamation funds as part of the mitigation for the wildlife habitat lost due to the construction of Blue Mesa Dam and Reservoir. The area is managed by the BLM, in cooperation with the Colorado DOW, as the Gunnison Forks Wildlife Management Area.

The management unit would be managed primarily to maintain suitable habitat for fish and wildlife use. Public fishing access to the rivers would be provided. The existing Habitat Management Plan (HMP) would be implemented.

**Oil and Gas.** Federal oil and gas estate would be open to leasing with a no surface occupancy stipulation.

**Mineral Materials.** Federal mineral estate would be closed to disposal of mineral materials.

**Threatened and Endangered Species.** Suitable habitat would be maintained for both the state-listed endangered river otter and winter concentrations of the federally-listed endangered bald eagle.

**Livestock Grazing.** The management unit would be excluded from livestock grazing use.

**Forestry.** No woodland product harvesting would be permitted in the management unit.

**Recreation.** The habitat management area would be used for public fishing access. Overnight camping would continue in several undeveloped sites within the management unit. Recreation use would be seasonally restricted if human disturbance limits use of the area by wintering bald eagles.

**Off-Road Vehicles.** Vehicle use within the management unit would be limited to designated roads and trails.

## PRODUCTION ALTERNATIVE

**Visual Resources.** Public lands totalling 65 acres would be managed under VRM Class II guidelines and 75 acres would be managed under VRM Class IV guidelines.

### MANAGEMENT UNIT A-6

#### *134,575 Acres of Public Surface; 28 percent of the Planning Area*

In general, the public lands in Management Unit A-6 (134,575 acres) would be managed according to the policy assumptions and standard resource program management guidance developed for the Continuation of Current Management Alternative. No single resource or resource use would have management priority. Specific resource management in this area would be prescribed as follows.

**Oil, Gas, and Geothermal Resources.** Federal oil, gas, and geothermal estate on approximately 80,400 acres would be open to leasing with standard lease terms. Approximately 73,000 acres of crucial deer and elk winter range would be open to leasing with a seasonal stipulation on seismic and drilling activities in effect from December 1 through April 30. The 17,200 acres suitable for leasing that are currently withdrawn from mineral activity would be open to leasing provided the agency reserving the withdrawal concurred.

**Locatable Minerals.** Federal mineral estate would be open to entry and location with the exception of 17,200 acres currently withdrawn from mineral activity.

**Mineral Materials.** Federal mineral estate would be open to disposal of mineral materials with the exception of 17,200 acres currently withdrawn from mineral activity.

**Soils and Water Resources.** Maintenance of existing watershed projects would be given a higher priority than implementation of new projects. Sediment and salinity control measures would be implemented as necessary.

**Wildlife Habitat.** Habitat management and improvement in the Billy Creek area would continue as a cooperative effort with the Colorado DOW. Shrub species composition would be maintained.

**Livestock Grazing.** Public lands would be managed as "I" category (16,017 acres), "M" category (63,180 acres), or "C" category (33,982 acres) grazing allotments.

**Forestry.** Commercial forest lands and pinyon-juniper woodlands that are suitable for harvest would be managed for sustained yield production within the allowable cut restrictions determined by the TPCC inventory. The reserved commercial timber on 160 acres of land deeded to the Girl Scouts of America would not be managed for sustained yield production.

**Visual Resources.** Public lands totalling 18,300 acres would be managed under VRM Class II guidelines; the remainder of the management unit would be managed under VRM Class III and VRM Class IV guidelines.

**Acquisition of Access.** Public access would be acquired on the southwest side of the Gunnison Forks and in the Beaver Hill, Terror Creek, Oak Ridge, Oak Mesa, and the Dry Creek/Olathe Reservoir areas for recreation, woodland management, and administrative purposes. Public access would be acquired to the Gunnison River near Austin to provide a river-user take-out area.

## PRODUCTION ALTERNATIVE

The objective of the Production Alternative is to continue multiple-use management of the public lands within the planning area with emphasis on promoting the development, production, and transportation of those resources which provide minerals, food, timber, and fiber. Productive utilization of resources would have priority over conservation of resources. Table 3-2 lists the relative ranking of resources or resource uses under the Production Alternative. The non-ranked program support functions which were considered in alternative formulation are also listed in Table 3-2.

All actions proposed under this alternative would comply with current state and federal regulations, standards, and policies.

*Some resource management programs would be standard throughout the planning area under the Production Alternative. Unless changes in or additions to standard management directions are specifically addressed in the management prescription for each management unit, these resources, programs, and activities would be managed as follows.*

**Air Quality.** Activities and projects on public land would comply with applicable local, state, and federal air quality regulations. Mitigation to minimize air quality degradation would be incorporated into project proposals as appropriate.

**Coal.** Federal coal estate would be identified as acceptable for further leasing consideration. Stipulations restricting coal development would be only those required by law.

**Oil, Gas, and Geothermal Resources.** Federal oil, gas, and geothermal estate would be open to leasing with standard lease terms. All no surface occupancy stipulations would apply only to federal surface with federal oil, gas, or geothermal estate. The most reasonable foreseeable level of oil, gas, and geothermal development throughout the planning area would involve a maximum of ten applications to drill per year, with an estimated total of 30 acres of surface disturbance.

**CHAPTER THREE**

Table 3-2  
**RESOURCE RANKING  
 FOR THE PRODUCTION ALTERNATIVE**

<b>RANKING OF RESOURCE OR RESOURCE USE</b>	<b>NON-RANKED PROGRAM SUPPORT FUNCTIONS</b>
1. Coal 2. Oil, gas, and geothermal resources 3. Locatable minerals 4. Saleable minerals (mineral materials) 5. Livestock grazing 6. Forestry 7. Major utilities 8. Wildlife habitat 9. Soils and water resources 10. Recreation 11. Threatened, endangered, candidate, and sensitive species 12. Riparian zones 13. Paleontological resources 14. Cultural resources 15. Wilderness	Off-road vehicle restrictions Fire management Access needs Acquisition of non-federal lands Restrictions on rights-of-way No surface occupancy restrictions Water/power withdrawals Withdrawal review Visual resource management

**Locatable Minerals.** All existing mineral withdrawals would be recommended for revocation. Federal mineral estate would be open to entry and location.

**Mineral Materials.** Federal mineral estate would be open to disposal of mineral materials.

**Soils and Water Resources.** Water quality and erosion conditions would be inventoried and monitored. Measures designed to minimize erosion and water quality deterioration would be considered in plans for surface-disturbing land use activities. The area would be open to land treatments and development of in-channel structures and project facilities.

**Riparian Zones.** Riparian zones would be inventoried and monitored where necessary to provide information for proper management. Vegetation conditions and streambank cover would be maintained. Measures designed to minimize site-specific riparian deterioration would be considered in plans for surface-disturbing land use activities.

**Threatened and Endangered Species.** Threatened and endangered species and unique plant associations would be inventoried and monitored where necessary to provide information for proper management. Clearances would be conducted on all proposed surface-disturbing activities and the USFWS would be consulted as required. Measures designed to protect threatened and endangered species and their habitat would be required in all land use activity plans. Supplemental releases and reintroduction of federal and state listed endangered, threatened, and candidate species could be authorized following environmental analysis and consultation with the USFWS, the Colorado DOW, and other affected parties.

**Wildlife Habitat.** Wildlife forage allocations would remain at current levels; no additional allocations would be made for wildlife use. Crucial wildlife habitat would be monitored. The planning area would be open to land treatment projects. Existing wildlife projects would be maintained. Supplemental releases and reintroduction of native or naturalized fish and wildlife species (excluding federal or state listed endangered, threatened, or candidate species) could be authorized by the District Manager following environmental analysis.

**Livestock Grazing.** All suitable public lands would be available for livestock grazing use. Livestock utilization would be managed at current forage allocation levels based on the Uncompahgre Basin Range Management Program and RPS updates. New or additional available forage would be allocated to livestock. Existing livestock facilities and land treatment projects would be maintained. Existing AMPs would be updated as needed and new AMPs would be written. New livestock facilities and land treatment projects would be developed if needed to achieve AMP objectives. Vegetation condition and trend monitoring studies would be established and/or maintained. Allotment categorization would determine management and monitoring intensity. Livestock numbers would be adjusted when studies indicate changes are necessary and new facilities or land treatments would be constructed or implemented.

**Forestry.** Suitable commercial forest lands and pinyon-juniper woodlands would be managed for sustained yield production within the allowable cut restrictions determined by the TPCC inventory.

**Recreation.** Public lands would be managed for extensive recreational use.

**Off-Road Vehicles.** Public lands would be open to ORV use.

**Cultural Resources.** Cultural and historical resources would be inventoried. Clearances would be conducted on sites of all proposed surface-disturbing activities. Measures designed to protect significant cultural and historical resources would be required in all land use activity plans.

## PRODUCTION ALTERNATIVE

**Paleontological Resources.** Paleontological resources would be inventoried and appropriate protective measures would be developed if necessary.

**Visual Resources.** Public lands would be managed under current VRM classifications and guidelines.

**Wilderness.** No WSAs, or portions thereof, would be recommended as suitable for wilderness designation.

**Major Utilities.** Public lands would be open to development of major utility facilities. Stipulations and mitigating measures would be developed on a case-by-case basis.

**Powersite Withdrawals.** Pending determination of potential existing powersite withdrawals would be maintained. These lands would not be subject to further consideration for disposal. No significant long-term investments would be made on these lands unless the investment could be recovered prior to development.

**Acquisition of Access.** In addition to the specific access needs identified in the management unit prescriptions, the access needs identified in the resource area's transportation plan would be acquired as opportunities arise.

**Fire Management.** Any fire which occurs in a fire use area before a prescription is approved, or is outside of the prescription, or threatens life or property, would be suppressed as if it were in a conditional suppression area.

The following management prescriptions comprise the Production Alternative. Acreage figures used in this discussion are approximations. Table 3-3 identifies the management units that were established for this alternative.

### DISPOSAL OF PUBLIC LANDS

A total of 171 tracts of public land totalling 29,496 acres would be identified for consideration for disposal through sale or exchange under this alternative. Nine of these tracts (9,536 acres) would be suitable for disposal through exchange only. Existing R&PP classifications on two tracts and existing withdrawals on several tracts would be lifted prior to disposal.

Prior to disposal, resources within identified tracts would be managed according to the management prescription for the management unit in which they are located. Minimal funds, if any, would be spent for improvements on these lands. Federal mineral estate would be conveyed with surface estate where it would be in the public interest.

Table 3-3

### MANAGEMENT UNITS: PRODUCTION ALTERNATIVE

MANAGEMENT UNIT	ACRES OF PUBLIC SURFACE	PERCENTAGE <sup>1</sup> OF THE PLANNING AREA	IMPORTANT RESOURCES, VALUES, OR LAND USES
B-1	37,620	8%	Coal, wildlife habitat
B-2	41,792	9%	Oil and gas, soils, recreation
B-3	4,988	1%	Oil and gas, geothermal resources, wildlife habitat
B-4	99,233	20%	Mineral materials, wildlife habitat, livestock grazing
B-5	241,437	50%	Livestock grazing, wildlife habitat, woodlands
B-6	257	Less than 1%	Commercial timber
B-7	10,993	2%	Woodlands, wildlife habitat
B-8	5,572	1%	Wildlife habitat, recreation, T&E species
B-9	80	Less than 1%	Recreation, scientific values
B-10	41,105	8%	General land uses

<sup>1</sup> Percentages are rounded to whole numbers.

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### MANAGEMENT UNIT B-1

#### *37,620 Acres of Public Surface; 8 percent of the Planning Area*

Management Unit B-1 consists of 109,997 acres of federal coal estate. A 37,620-acre portion of this federal coal estate underlies federal surface estate. The management unit incorporates all existing coal leases and all unleased lands within the planning area that are determined to have coal development potential.

The management unit would be managed for both existing and potential coal development. Development of existing coal leases would continue, and unleased federal coal would be identified as acceptable for further coal leasing consideration with a minimum of multiple-use restrictions. Activities and land uses that are consistent with maintaining existing coal operations and the potential for coal development would be permitted.

**Wildlife Habitat.** Wildlife habitat management objectives, mitigating measures, and projects that are consistent with the program objectives for grazing and forest production would be incorporated into new and existing AMPs and Forest Management Plans (FMPs). Existing wildlife habitat projects would be maintained if they would not decrease the woodland or timber base. In-channel structures and improvements would be developed in aquatic habitats.

**Livestock Grazing.** Public lands would be managed as "I" category (25,162 acres), "M" category (4,101 acres), or "C" category (8,358 acres) grazing allotments.

**Forestry.** All commercial forest lands and pinyon-juniper woodlands that are suitable for harvest would be managed for sustained yield production within the allowable cut restrictions determined by the TPCC inventory. An FMP would be developed for the Storm King Peak area.

**Off-Road Vehicles.** Vehicle use would be limited to designated roads and trails yearlong in riparian zones, and from December 1 through April 30 on 2,905 acres of crucial deer and elk winter range. Variances in the seasonal ORV designation may be granted if ORV activities are determined to be compatible with the area's use as crucial winter range. The seasonal ORV designation would be subject to change on a site-specific basis if mild winter conditions eliminate the need for protection of a crucial winter range.

**Major Utilities.** Development of major utility facilities would be permitted only within one-quarter mile of Colorado Highway 133 in the Paonia/Somerset coal planning area (4,220 acres). Public land in the Tongue Mesa coal planning area (3,421 acres) would be closed to development of major utility facilities. Within the management unit, 72 percent of the public lands that are identified as needed for future

major utility development would be closed to this type of development. This management would greatly reduce the long-term conflicts between new utility facilities and the potential surface effects of coal mine subsidence.

**Acquisition of Access.** Public access would be acquired into the Storm King/High Park, Oak Mesa, Spaulding Peak/Dry Creek, and Terror Creek areas for recreation and forest management purposes.

**Fire Management.** A total of 34,703 acres of public land would be managed under the fire suppression category, with 32,866 acres identified for intensive suppression and 1,837 acres identified for conditional suppression. A total of 2,917 acres would be managed under the fire-use category where fire would be utilized as a management tool. Planned or natural ignitions meeting pre-determined prescriptions would be allowed on 2,400 acres, and only natural ignitions meeting pre-determined prescriptions would be allowed on 517 acres.

### MANAGEMENT UNIT B-2

#### *41,792 Acres of Public Surface; 9 percent of the Planning Area*

Management Unit B-2 consists of federal oil and gas estate totalling 73,172 acres. A 41,792-acre portion of this federal oil and gas estate underlies federal surface estate. Three Known Geologic Structures (KGS) are located within this area.

The management unit would be managed for oil and gas development. All federal oil and gas estate within the unit would be open to leasing with standard lease terms. Activities and land uses that are consistent with maintaining the oil and gas development potential of the area would be permitted.

**Soils and Water Resources.** Both in-channel structures and land treatment projects designed to reduce runoff, erosion, and sedimentation, and to control salinity would be implemented on 21,160 acres of public land. These acres are determined to be highly erodible and saline, and to contribute to salinity problems within local and regional watersheds.

**Wildlife Habitat.** Non-conflicting wildlife habitat management objectives, mitigating measures, and projects would be incorporated into new and existing AMPs and FMPs. Existing wildlife habitat projects would be maintained if they would not decrease the woodland or timber base. In-channel structures and improvements would be developed in aquatic habitats. The Gunnison Forks HMP would be revised to reflect the objectives of the Production Alternative.

**Livestock Grazing.** Public lands would be managed as "I" category (19,411 acres), "M" category (3,411 acres), or "C" category (18,970 acres) grazing allotments. No

## PRODUCTION ALTERNATIVE

livestock grazing would be permitted on adobe soils (21,160 acres) from March 20 to range readiness to prevent damage to vegetation during critical growing periods.

**Off-Road Vehicles.** Vehicle use would be limited to designated roads and trails yearlong in riparian zones, and from December 1 through April 30 on 5,177 acres of crucial deer and elk winter range. This seasonal ORV designation would be subject to change on a site-specific basis if mild winter conditions eliminate the need for protection of a crucial winter range. The riparian areas in the Gunnison Forks HMP area (35 acres) would be closed to ORV use.

**Fire Management.** A total of 37,413 acres of public land would be managed under the fire suppression category, with 5,314 acres identified for intensive suppression and 32,099 acres identified for conditional suppression. A total of 4,379 acres would be managed under the fire-use category where fire would be utilized as a management tool. Planned or natural ignitions meeting pre-determined prescriptions would be allowed on 2,817 acres, and only natural ignitions meeting pre-determined prescriptions would be allowed on 1,562 acres.

### MANAGEMENT UNIT B-3

#### *4,988 Acres of Public Surface; 1 percent of the Planning Area*

Management Unit B-3 consists of federal oil, gas, and geothermal estate totalling 8,097 acres. A 4,988-acre portion of this federal oil, gas, and geothermal estate underlies federal surface estate. The management unit is considered prospectively valuable for geothermal resources because geothermal development is occurring on contiguous lands outside of the planning area boundary.

The management unit would be managed for oil, gas, and geothermal development. All federal oil, gas, and geothermal estate within the unit would be open to leasing with standard lease terms. Activities and land uses that are consistent with maintaining the oil, gas, and geothermal development potential of the area would be permitted.

**Wildlife Habitat.** Non-conflicting wildlife habitat management objectives, mitigating measures, and projects would be incorporated into new and existing AMPs and FMPs. Existing wildlife habitat projects would be maintained if they would not decrease the woodland or timber base.

**Livestock Grazing.** Public lands would be managed as "I" category (582 acres), "M" category (477 acres), or "C" category (3,929 acres) grazing allotments.

**Off-Road Vehicles.** Vehicle use within the management unit would be limited to designated roads and trails yearlong in riparian zones, and from December 1 through April 30 on 2,540 acres of crucial deer and elk winter range. This seasonal ORV designation would be subject to change on

a site-specific basis if mild winter conditions eliminate the need for protecting a crucial winter range.

**Fire Management.** A total of 4,428 acres of public land would be managed under the fire suppression category, with 563 acres identified for intensive suppression and 3,865 acres identified for conditional suppression. A total of 560 acres would be managed under the fire-use category where fire would be utilized as a management tool. Planned or natural ignitions meeting pre-determined prescriptions would be allowed on these areas.

### MANAGEMENT UNIT B-4

#### *99,233 Acres of Public Surface; 20 percent of the Planning Area*

Management Unit B-4 is comprised primarily of federal mineral estate totalling 99,054 acres. A total of 179 acres of public surface within the management unit lacks federal mineral estate and is therefore not available for disposal of mineral materials. Salable mineral materials on these lands include dimension stone, moss rock, sand, gravel, rip-rap, and bentonitic clay.

The management unit would be managed for mineral material development. Activities and land uses that are consistent with maintaining existing mineral material operations and the overall development potential of the area would be permitted.

**Soils and Water Resources.** An 8,742-acre portion of Management Unit B-4 is determined to be highly erodible. Of this area, 3,107 acres are highly saline and contribute to salinity problems within local and regional watersheds. Both in-channel structures and land treatment projects designed to reduce runoff, erosion, and sedimentation, and to control salinity would be developed as needs are identified. These projects would be designed to be consistent with management of woodland and timber resources and crucial deer and elk winter range.

**Wildlife Habitat.** Non-conflicting wildlife habitat management objectives, mitigating measures, and projects would be incorporated into new and existing AMPs and FMPs. Existing wildlife habitat projects would be maintained if they would not decrease the woodland or timber base. In-channel structures and improvements would be developed in aquatic habitats.

**Livestock Grazing.** Public lands would be managed as "I" category (66,477 acres), "M" category (26,143 acres), or "C" category (6,613 acres) grazing allotments.

**Recreation.** Portions of the Gunnison River within the management unit would be managed as part of the larger Lower Gunnison River SRMA (see Management Unit B-5). River access would be developed at the Escalante Bridge. Activities and land uses that are consistent with maintaining

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float-boating opportunities within a generally natural river environment would be permitted. The area would be managed in a manner that would minimize recreational impacts on the interspersed private lands adjacent to the Gunnison River. Maps and informational materials pertaining to boating opportunities would be provided.

**Off-Road Vehicles.** Vehicle use within the management unit would be limited to designated roads and trails yearlong in riparian zones, and from December 1 through April 30 on 54,947 acres of crucial deer and elk winter range. This seasonal ORV designation would be subject to change on a site-specific basis if mild winter conditions eliminate the need for protection of a crucial winter range.

**Cultural Resources.** A Class III inventory of cultural resources would be conducted on 1,978 acres. The results of archeological studies indicate that these lands contain important cultural resources.

**Acquisition of Non-Federal Lands.** Non-federal lands and associated water rights that would be necessary to improve waterfowl habitat and riparian zone management along the Gunnison River and in the Dry Creek drainage would be identified for possible acquisition.

**Acquisition of Access.** Public access would be acquired into the Beaver Hill, Linscott Canyon, and Dry Creek/Olathe Reservoir areas for recreation and woodland management purposes.

**Fire Management.** A total of 65,628 acres of public land would be managed under the fire suppression category, with 32,858 acres identified for intensive suppression and 32,770 acres identified for conditional suppression. A total of 33,605 acres would be managed under the fire-use category where fire would be utilized as a management tool. Planned or natural ignitions meeting pre-determined prescriptions would be allowed on 33,580 acres, and only natural ignitions meeting pre-determined prescriptions would be allowed on 25 acres.

### MANAGEMENT UNIT B-5

#### *241,437 Acres of Public Surface; 50 percent of the Planning Area*

Management Unit B-5 consists of 241,437 acres of public land located throughout the planning area. The management unit is used extensively for livestock grazing; it also provides a great deal of deer and elk winter habitat, some of which is considered to be crucial. Some highly productive woodlands exist within the management unit, and the area is also utilized for recreational hunting.

Public lands within the management unit would be managed as "I" category grazing allotments. Livestock grazing use would be managed at current forage allocation levels based on the Uncompahgre Basin Range Management

Program and RPS updates. Livestock numbers would be adjusted when forage utilization studies indicate changes are necessary to achieve AMP objectives. No livestock grazing would be permitted on adobe soils from March 20 to range readiness. All sheep would be removed from these areas by March 20 to prevent damage to vegetation during critical growing periods.

The management unit would be managed to improve vegetation conditions and forage availability for livestock grazing. Land treatment projects and other facilities designed to improve livestock forage and distribution would be developed. Intensive monitoring studies would be established and maintained on all grazing allotments. Existing AMPs would be updated as needed and new AMPs would be developed for allotments without plans. As additional forage becomes available, livestock would have priority for allocation. Relinquished, cancelled, or acquired livestock grazing permits would be reissued according to regulations.

**Soils and Water Resources.** In-channel structures and land treatment projects designed to reduce runoff, erosion, and sediment, and to control salinity would be developed if they would be compatible with crucial deer and elk winter range and would not affect the woodland or timber base.

**Wildlife Habitat.** Non-conflicting wildlife habitat management objectives, mitigating measures, and projects would be incorporated into new and existing AMPs and FMPs. Existing wildlife habitat projects would be maintained if they would not decrease the woodland or timber base. In-channel structures and improvements would be developed in aquatic habitats. Bighorn sheep would be transplanted into the Camel Back area if they would not conflict with current and future livestock grazing forage allocations.

**Forestry.** Commercial forest lands and pinyon-juniper woodlands that are suitable would be managed for increased forage production.

**Recreation.** The upper portion of the Gunnison Gorge would be managed as part of an SRMA that would encompass the entire inner gorge (see Management Unit B-8). Activities that are consistent with maintaining float-boating, hiking, and sightseeing opportunities within a generally natural environment would be permitted. River access would be maintained at the Chukar Trail. River use would be managed for a maximum of 20 group encounters per day. River-use permits would be allocated on a daily basis and would be limited to eight overnight and twelve day-use permits. One-half of the permits (four overnight and six day-use) would be allocated to commercially-outfitted groups and the other half would be issued to private users.

Public land on 353 acres along the Gunnison River between the Escalante bridge and Delta/Mesa county line would be managed as part of a larger SRMA (see

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Management Unit B-4). Activities that are consistent with maintaining float-boating opportunities within a generally natural river environment would be permitted. Maps and informational materials pertaining to boating opportunities would be provided. The BLM would manage recreation use in a manner that would minimize recreational impacts on the interspersed private lands adjacent to the Gunnison River.

Public land on 1,895 acres in the Cottonwood Springs area of Escalante Canyon would be managed as a Scenic Area. Activities that are consistent with maintaining scenic viewing opportunities in a roaded but natural environment would be permitted.

**Off-Road Vehicles.** The management unit would be open to ORV use except for crucial deer and elk winter range (79,220 acres) where vehicle use would be limited to designated roads and trails from December 1 through April 30 if necessary due to herd concentrations. Vehicle use would be limited to designated roads and trails in riparian zones, on adobe soils, and in the Escalante Canyon scenic area.

**Cultural Resources.** A Class III inventory of cultural resources would be conducted on 760 acres of public land.

**Visual Resources.** The Escalante Canyon scenic area (1,895 acres) would be managed under VRM Class II guidelines to protect its scenic qualities.

**Acquisition of Non-Federal Land.** State land on the Uncompahgre Plateau which is currently managed by the Colorado DOW, and other non-federal lands and associated water rights that would be necessary to improve waterfowl habitat and riparian zone management would be identified for possible acquisition.

**Acquisition of Access.** Public access would be acquired into the southwest side of the Gunnison Forks area and into the Oak Ridge, McDonald Mesa, and Roatcap-Jay Creek areas for recreation purposes.

**Fire Management.** A total of 125,457 acres of public land would be managed under the fire suppression category, with 30,700 acres identified for intensive suppression and 94,757 acres identified for conditional suppression. A total of 115,980 acres would be managed under the fire-use category where fire would be utilized as a management tool. Planned or natural ignitions meeting pre-determined prescriptions would be allowed on 81,539 acres, and only natural ignitions meeting pre-determined prescriptions would be allowed on 34,441 acres.

### MANAGEMENT UNIT B-6

#### *257 Acres of Public Surface; less than 1 percent of the Planning Area*

Management Unit B-6 is 257 acres of public lands located at the higher elevations of the planning area, primarily in the High Park area southeast of Montrose and in the North Fork area northeast of Hotchkiss. The management unit's forests are predominantly overmature stands of spruce-fir with some ponderosa pine. These forest lands provide deer and elk habitat and elk calving areas, and have some recreational hunting use.

The management unit would be managed for sustained yield production of the forest resource within the allowable cut restrictions determined by the TPCC inventory.

### MANAGEMENT UNIT B-7

#### *10,993 Acres of Public Surface; 2 percent of the Planning Area*

Management Unit B-7 is 10,933 acres of public land located primarily on the northeast-facing slopes of the Uncompahgre Plateau. The management unit contains some of the most productive pinyon-juniper woodland sites in the planning area. They are used extensively for livestock grazing and are valuable deer and elk habitat.

The management unit would be managed for sustained yield production of the woodland resource within the allowable cut restrictions determined by the TPCC inventory (10,993 acres).

The following prescribes the management of other resources in both **Management Unit B-6** and **Management Unit B-7**. The acreage figures represent the combined totals of both management units.

**Riparian Zones.** Riparian zones on 960 acres in the upper Spring Creek drainage would be managed to improve existing vegetation conditions and to maintain existing streambank cover. These areas would be intensively monitored.

**Wildlife Habitat.** Non-conflicting wildlife habitat management objectives, mitigating measures, and projects would be incorporated into new FMPs. Existing wildlife habitat projects would be maintained and new projects would be developed if they would not decrease the woodland or timber base. In-channel structures and improvements could be developed in aquatic habitats.

**Off-Road Vehicles.** The management unit would be open to ORV use except in crucial deer and elk winter range (7,110 acres) where vehicle use would be limited to designated roads and trails from December 1 through

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April 30 if necessary due to herd concentrations. Vehicle use would be limited to designated roads and trails in riparian zones.

**Fire Management.** A total of 8,595 acres of public land would be managed under the fire suppression category, with 1,621 acres identified for intensive suppression and 6,974 acres identified for conditional suppression. A total of 2,655 acres would be managed under the fire-use category where fire would be utilized as a management tool. Planned or natural ignitions meeting pre-determined prescriptions would be allowed on these areas.

### MANAGEMENT UNIT B-8

#### *5,572 Acres of Public Surface; 1 percent of the Planning Area*

Management Unit B-8 is within the inner canyon of the Gunnison Gorge. The Colorado DOW has reintroduced river otters and Rocky Mountain bighorn sheep to this area, which also provides winter habitat for waterfowl and bald eagles. The Gunnison River is used extensively for kayaking and rafting throughout the spring and summer.

The management unit would be managed to improve habitat conditions for bighorn sheep. All available forage would be allocated to wildlife, and intensive monitoring studies would be initiated or maintained.

**Livestock Grazing.** The management unit would remain closed to livestock grazing.

**Recreation.** The unit would be managed as part of the Gunnison Gorge SRMA which would encompass the entire inner gorge. River use would be managed for a maximum of 20 group encounters per day. River-use permits would be allocated on a daily basis and would be limited to eight overnight and twelve day-use permits. One-half of the permits (four overnight and six day-use) would be allocated to commercially-outfitted groups and the other half would be issued to private users.

**Off-Road Vehicles.** The management unit would be open to ORV use except on crucial deer and elk winter range (1,175 acres) where vehicle use would be limited to designated roads and trails from December 1 through April 30 if necessary due to herd concentrations. Vehicle use would be limited to designated roads and trails in riparian zones.

**Fire Management.** A total of 12 acres of public land would be managed under the fire suppression category and would be identified for conditional suppression. A total of 5,560 acres would be managed under the fire-use category where fire would be utilized as a management tool. Planned or natural ignitions meeting pre-determined prescriptions would be allowed on 700 acres, and only natural ignitions

meeting pre-determined prescriptions would be allowed on 4,860 acres.

### MANAGEMENT UNIT B-9

#### *80 Acres of Public Surface; less than 1 percent of the Planning Area*

Management Unit B-9 is an 80-acre site consisting mainly of a volcanic structure with high-value scientific, interpretive, and scenic characteristics. A shelter facility and interpretive nature trail have been developed in the area. Needle Rock is part of the Colorado Natural Areas Program and is one of the significant public land geologic features in Colorado as identified by the BLM's Geologic Advisory Group.

The management unit is currently designated as the Needle Rock Outstanding Natural Area (ONA). This designation precludes surface-disturbing activities that are not consistent with management of the area for natural, scenic, and educational values. The area would be managed to protect these values and for recreation opportunities (sightseeing, picnicking, and geologic study) in a roaded but natural environment. The ONA designation would be retained and a management plan would be developed.

**Oil and Gas.** Federal oil and gas estate would remain open to leasing with a no surface occupancy stipulation.

**Locatable Minerals.** Federal mineral estate would remain withdrawn from entry and location.

**Mineral Materials.** Federal mineral estate would be closed to disposal of mineral materials.

**Livestock Grazing.** The management unit would remain unallotted for livestock grazing use.

**Off-Road Vehicles.** Vehicle use within the management unit would be limited to designated roads and trails.

**Visual Resources.** The management unit would be managed under VRM Class I guidelines.

**Major Utilities.** The management unit would be closed to development of major utility facilities.

**Fire Management.** The entire management unit would be identified for intensive management under the fire suppression category.

### MANAGEMENT UNIT B-10

#### *41,105 Acres of Public Surface; 8 percent of the Planning Area*

In general, the public lands in Management Unit B-10 (41,105 acres) would be managed according to the policy assumptions and standard resource program management guidance developed for the Production Alternative. No single resource or resource use would have management priority.

**CONSERVATION ALTERNATIVE**

Table 3-4

**RESOURCE RANKING  
FOR THE CONSERVATION ALTERNATIVE**

No activity plans would be written and no major BLM-funded projects or facilities would be developed within this area. Habitat, vegetation, and other resource studies would be minimal. Specific resource management in this area would be prescribed as follows.

**Livestock Grazing.** Public lands would be managed as "M" category (28,963 acres) or as "C" category (12,142 acres) grazing allotments. No livestock grazing would be permitted on adobe soils from March 20 to range readiness to prevent damage to vegetation during critical growing periods.

**Off-Road Vehicles.** Public lands would be open to ORV use except in crucial deer and elk winter range (6,040 acres) where vehicle use would be limited to designated roads and trails from December 1 through April 30 if necessary due to herd concentrations. Vehicle use would be limited to designated roads and trails in riparian zones.

**Fire Management.** A total of 38,428 acres of public land would be managed under the fire suppression category, with 8,943 acres identified for intensive suppression and 29,485 acres identified for conditional suppression. A total of 2,677 acres would be managed under the fire-use category where fire would be utilized as a management tool. Planned or natural ignitions meeting pre-determined prescriptions would be allowed on 2,217 acres, and only natural ignitions meeting pre-determined prescriptions would be allowed on 460 acres.

**CONSERVATION ALTERNATIVE**

The objective of the Conservation Alternative is to continue multiple-use management of the public lands within the planning area with emphasis on conserving and protecting resources such as wilderness, cultural sites, wildlife habitats, watersheds, and recreation areas. Conservation would have priority over consumption of resources. Sensitive, unique, and high-value scientific resource areas would receive the highest level of protective management. Table 3-4 lists the relative ranking of resources or resource uses under the Conservation Alternative. The non-ranked program support functions which were considered in alternative formulation are also listed in Table 3-4.

All actions proposed under this alternative would comply with current state and federal regulations, standards, and policies.

RANKING OF RESOURCE OR RESOURCE USE	NON-RANKED PROGRAM SUPPORT FUNCTIONS
<ol style="list-style-type: none"> <li>1. Wilderness</li> <li>2. Threatened, endangered, candidate, and sensitive species</li> <li>3. Riparian zones</li> <li>4. Cultural resources</li> <li>5. Paleontological resources</li> <li>6. Recreation</li> <li>7. Soils and water resources</li> <li>8. Wildlife habitat</li> <li>9. Forestry</li> <li>10. Livestock grazing</li> <li>11. Major utilities</li> <li>12. Saleable minerals (mineral materials)</li> <li>13. Locatable minerals</li> <li>14. Oil, gas, and geothermal resources</li> <li>15. Coal</li> </ol>	<ul style="list-style-type: none"> <li>Off-road vehicle restrictions</li> <li>Fire management</li> <li>Access needs</li> <li>Acquisition of non-federal lands</li> <li>Restrictions on rights-of-way</li> <li>No surface occupancy restrictions</li> <li>Water/power withdrawals</li> <li>Withdrawal review</li> <li>Visual resource management</li> </ul>

*Some resource management programs would be standard throughout the planning area under the Conservation Alternative. Unless changes in or additions to standard management directions are specifically addressed in the management prescription for each management unit, these resources, programs, and activities would be managed as follows.*

**Air Quality.** Activities and projects on public land would comply with applicable local, state, and federal air quality regulations. Mitigation to minimize air quality degradation would be incorporated into project proposals as appropriate.

**Coal.** Federal coal estate would be identified as acceptable for further leasing consideration.

**Oil, Gas, and Geothermal Resources.** Federal oil, gas, and geothermal estate would be open to leasing with standard lease terms. All no surface occupancy and seasonal stipulations would apply only to federal surface with federal oil, gas, or geothermal estate. Seasonal stipulation prescribed for the management units would apply to seismic and drilling activities. The most reasonable foreseeable level of oil, gas, and geothermal development throughout the planning area

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would involve a maximum of ten applications to drill per year, with an estimated total of 30 acres of surface disturbance.

**Locatable Minerals.** All existing mineral withdrawals would be recommended for retention. Federal mineral estate in areas not under withdrawal would be open to entry and location.

**Mineral Materials.** Federal mineral estate would be open to disposal of mineral materials.

**Soils and Water Resources.** Water quality and erosion conditions would be inventoried and monitored. Measures designed to minimize erosion and water quality deterioration would be required in plans for surface-disturbing land use activities.

**Riparian Zones.** Riparian areas would be inventoried and monitored where necessary to provide information for proper management. Vegetation conditions and streambank cover would be maintained or improved. Measures designed to minimize site-specific riparian deterioration would be required in plans for surface-disturbing land use activities.

**Threatened and Endangered Species.** Threatened and endangered species and unique plant associations would be inventoried and monitored where necessary to provide information for proper management. Clearances would be conducted on all proposed surface-disturbing activities and the USFWS would be consulted as required. Measures designed to protect threatened and endangered species and their habitat would be required in all land use activity plans. Supplemental releases and reintroduction of federal and state listed endangered, threatened, and candidate species could be authorized following environmental analysis and consultation with the USFWS, the Colorado DOW, and other affected parties.

**Wildlife Habitat.** Wildlife forage allocations would not be reduced and new forage would be allocated to wildlife. Terrestrial and aquatic wildlife habitat would be inventoried and monitoring studies would be established on all crucial winter ranges. Measures designed to minimize wildlife habitat deterioration would be required in plans for surface-disturbing land use activities. Supplemental releases and reintroduction of native or naturalized species (excluding federal or state listed endangered, threatened, or candidate species) could be authorized by the District Manager following environmental analysis.

**Livestock Grazing.** Livestock utilization would be managed at current forage allocation levels based on the Uncompahgre Basin Range Management Program and RPS updates. New or additional available forage would be allocated to wildlife. Existing livestock facilities and land treatments would be maintained. Vegetation condition and trend monitoring studies would be established and/or maintained. Allotment categorization would determine

management and monitoring intensity. Existing AMPs would be updated as needed and new AMPs would be developed. Livestock numbers would be adjusted when studies indicate changes are necessary.

**Forestry.** Suitable commercial forest lands and pinyon-juniper woodlands would be managed for sustained yield production within allowable cut restrictions determined by the TPCC inventory.

**Recreation.** Public lands would be managed for extensive recreational use. Land status maps and some directional road signs would be provided but no major recreational facilities would be developed. Recreational use of public lands would be occasionally monitored.

**Off-Road Vehicles.** Public lands throughout the planning area would be open to ORV use.

**Cultural Resources.** Cultural and historical resources would be inventoried. Clearances would be conducted on sites of all proposed surface-disturbing activities. Measures designed to protect significant cultural and historical resources would be required in all land use activity plans.

**Paleontological Resources.** Paleontological resources would be inventoried. Measures designed to protect the integrity of paleontological resources would be required in plans for surface-disturbing land use activities.

**Visual Resources.** Public lands would be managed under current VRM classifications and guidelines.

**Major Utilities.** Public lands would be open to development of major utility facilities. Stipulations and mitigating measures would be developed on a case-by-case basis.

**Powersite Withdrawals.** Pending determination of potential, existing powersite withdrawals would be maintained. These lands would not be subject to further consideration for disposal. No significant long-term investments would be made on these lands unless the investment could be recovered prior to development.

**Acquisition of Access.** In addition to the specific access needs identified in the management unit prescriptions, the access needs identified in the resource area's transportation plan would be acquired as opportunities arise.

**Fire Management.** Any fire which occurs in a fire use area before a prescription is approved, or is outside of the prescription, or threatens life or property, would be suppressed as if it were in a conditional suppression area.

The following management prescriptions comprise the Conservation Alternative. Acreage figures used in this discussion are approximations. Table 3-5 identifies the management units that were established for this alternative.

**CONSERVATION ALTERNATIVE**

Table 3-5  
**MANAGEMENT UNITS:  
 CONSERVATION ALTERNATIVE**

MANAGEMENT UNIT	ACRES OF PUBLIC SURFACE	PERCENTAGE <sup>1</sup> OF THE PLANNING AREA	IMPORTANT RESOURCES, VALUES, OR LAND USES
C-1	41,865	9%	Wilderness, recreation, soils
C-2	1,895	Less than 1%	Recreation, T&E species
C-3	377	Less than 1%	T&E species, soils
C-4	6,385	1%	Riparian habitat, livestock grazing, aquatic wildlife
C-5	2,738	Less than 1%	Cultural resources, mineral materials, wildlife habitat
C-6	40,792	8%	Recreation, soils, woodlands
C-7	80	Less than 1%	Recreation, scientific values
C-8	8,942	2%	Recreation, soils
C-9	353	Less than 1%	Recreation, livestock grazing
C-10	1,520	Less than 1%	Recreation, coal, wildlife habitat, commercial timber
C-11	21,703	5%	Soils, wildlife habitat, livestock grazing
C-12	26,578	6%	Soils, recreation, oil and gas
C-13	102,807	21%	Wildlife habitat, livestock grazing, woodlands
C-14	1,712	Less than 1%	Wildlife habitat, commercial timber, recreation
C-15	25,927	5%	Wildlife habitat, livestock grazing
C-16	17,032	4%	Wildlife habitat, livestock grazing
C-17	10,707	2%	Wildlife habitat, recreation
C-18	61,490	13%	Aquatic habitat, coal, livestock grazing
C-19	1,280	Less than 1%	Commercial timber, wildlife habitat
C-20	27,522	6%	Woodlands, coal, livestock grazing, wildlife habitat
C-21	31,062	6%	Livestock grazing, wildlife habitat, coal
C-22	5,453	1%	Oil and gas
C-23	722	Less than 1%	Oil and gas, geothermal resources
C-24	9,113	2%	Coal
C-25	35,022	7%	General land uses

<sup>1</sup> Percentages are rounded to whole numbers.

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### MANAGEMENT UNIT C-1

#### *41,865 Acres of Public Surface; 9 percent of the Planning Area*

Management Unit C-1 consists of the three WSAs in the planning area. The Camel Back WSA, CO-030-353 (10,402 acres), the Adobe Badlands WSA, CO-030-370B (10,425 acres), and the Gunnison Gorge WSA, CO-030-388 (21,038 acres) would be recommended as preliminarily suitable for wilderness designation.

During the wilderness intensive inventory, each of these areas was determined to meet the wilderness size requirement of at least 5,000 acres, to be natural, and to provide outstanding opportunities for solitude and primitive/unconfined recreation. If designated as wilderness by Congress, activities and land uses that are consistent with preserving the natural condition and wilderness character of these areas would be permitted.

**Air Quality.** The wilderness areas would be managed within federal air quality Class II guidelines unless the State of Colorado reclassifies the areas, or other areas, as a result of procedures prescribed in the Clean Air Act as amended in 1977. Under other state authorities, the Gunnison Gorge WSA is currently managed as a Category I area where more restrictive sulfur dioxide requirements apply.

**Coal.** All federal coal estate within the Adobe Badlands WSA (507 acres) would be identified as unsuitable for coal leasing. This acreage is within the Bookcliffs and Paonia/Somerset coal planning areas.

**Oil and Gas.** All wilderness areas would be closed to future oil and gas leasing. There are no pre-FLPMA leases in the WSAs. Development of any post-FLPMA leases would be permitted only if activities would result in no impairment of wilderness characteristics.

**Locatable Minerals.** All wilderness areas would be closed to mineral entry and location except for pre-FLPMA claims determined to have valid discoveries.

**Mineral Materials.** All wilderness areas would be closed to disposal of mineral materials.

**Soils and Water Resources.** Where natural recovery is unlikely, deteriorated watershed conditions would be restored if life, property, or wilderness values are threatened, or if serious depreciation of important environmental qualities outside the affected wilderness area is evident. Revegetation efforts would be limited to use of native or naturalized species. Whenever feasible, non-motorized access and project development methods would be required. An 8,800-acre portion of the Adobe Badlands WSA would be managed to reduce saline runoff. Approval of the BLM Director would be required for all watershed restoration projects.

**Threatened and Endangered Species.** Threatened and endangered species research and habitat improvement would be permitted if activities are consistent with protection of wilderness values. Habitat in the Gunnison Gorge area would be managed for bald eagles, peregrine falcons, and river otters. Recreation use would be restricted if necessary for the protection of threatened and endangered species.

**Wildlife Habitat.** Wildlife habitat would be managed to allow for natural distribution, numbers, and interaction of indigenous wildlife and fish species. Developed facilities, if necessary for the continued existence or welfare of a wildlife species, would be permissible if wilderness characteristics would not be impaired. Hunting, fishing, and recreational trapping would be permitted. Bighorn sheep would be reintroduced into the Gunnison Gorge and Camel Back areas in cooperation with the Colorado DOW. Habitat would be managed for both bighorn sheep and wintering deer and elk in these two areas. Supplemental releases of bighorn sheep would be permitted as identified in the reintroduction plan of 1987 or its future amendments.

**Livestock Grazing.** Livestock grazing and facility maintenance would be managed at levels established prior to wilderness designation. New rangeland improvements would be permissible if determined to be necessary for rangeland and/or wilderness protection. Where practical access alternatives such as horseback are not feasible, facility maintenance or other range activities could be accomplished with the occasional use of motorized equipment.

Livestock grazing would be eliminated from March 1 through May 31 and restricted to 35 percent utilization of key forage species on 8,800 acres identified for salinity control management in the Adobe Badlands WSA. These restrictions would reduce soil compaction and increase ground cover.

**Forestry.** Woodland harvest and/or management would be permitted only for control of insects and disease if determined necessary to protect resources outside the affected wilderness area. There is a total of 337 acres of productive woodlands within the Gunnison Gorge WSA and 86 acres within the Adobe Badlands WSA that would be unavailable for management and harvest.

**Recreation.** Recreation use would be regulated as necessary to protect wilderness values. Highest priority would be given to low-impact recreation activities that cannot be accommodated outside the wilderness environment. Facilities, improvements, and signs would be limited to those necessary to protect wilderness resources along with public health and safety. Permits would be required for all commercial recreation uses and, if necessary to protect wilderness values, for all non-commercial recreationists.

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River use in the Gunnison Gorge area would be managed for a maximum of six group encounters per day. River use permits would be allocated on a daily basis and would be limited to one commercial and two non-commercial overnight permits, and one commercial and two non-commercial day-use permits.

**Off-Road Vehicles.** Vehicle use in general would be eliminated from wilderness areas. Vehicle use would be permitted in certain circumstances involving valid existing rights, livestock grazing, fire suppression, life-threatening emergencies, and wilderness area administration.

**Cultural and Paleontological Resources.** In most instances, cultural and paleontological resources would be subject to the forces of nature in the same manner as other wilderness resources. Study or management would rarely entail excavation, stabilization, or interpretation. Exceptions may be granted by the BLM State Director for unusually significant cultural or paleontological resources.

**Visual Resources.** Wilderness areas would be managed under VRM Class I guidelines.

**Major Utilities.** All wilderness areas would be closed to development of new major utility facilities.

**Acquisition of Non-Federal Lands.** Non-federal land on 320 acres within or adjacent to the Camel Back WSA would be identified for acquisition.

**Fire Management.** A total of 41,865 acres would be managed under the fire-use category where fire would be utilized as a management tool. Only natural ignitions meeting pre-determined prescriptions would be allowed in these areas.

### MANAGEMENT UNIT C-2

*1,895 Acres of Public Surface; less than 1 percent of the Planning Area.*

Management Unit C-2 consists of 1,895 acres of public land in Escalante Canyon approximately six miles southwest of the Gunnison River. Several federally listed threatened and endangered plant species and two unique plant associations occur in the management unit. The area also receives significant recreational use due to its scenic qualities and the presence of eroded potholes in Escalante Creek.

The management unit would be designated as the Escalante Canyon Research Natural Area (RNA). It would be managed to enhance and protect the listed plant species and unique plant associations. Plant monitoring studies would be developed and activities designed to improve these plants' habitat conditions would be initiated. Surface-disturbing activities would be restricted.

**Oil and Gas.** Federal oil and gas estate would be open to leasing with a no surface occupancy stipulation.

**Locatable Minerals.** Federal mineral estate would be withdrawn from entry and location.

**Mineral Materials.** Federal mineral estate would be closed to disposal of mineral materials.

**Wildlife Habitat.** Habitat would be managed for wintering deer and elk. Naturally-appearing structures would be placed in Escalante Creek, as necessary, to improve aquatic habitat.

**Livestock Grazing.** Livestock grazing would be eliminated in the management unit.

**Forestry.** Woodland management and harvesting would be eliminated in the management unit.

**Recreation.** Only camping with primitive walk-in access would be permitted. The management unit would be identified as a Scenic Area to protect scenic values.

**Off-Road Vehicles.** Vehicle use within the management unit would be prohibited except on the Escalante Canyon road.

**Visual Resources.** The management unit would be managed under VRM Class I guidelines.

**Major Utilities.** The management unit would be closed to development of additional major utility facilities.

**Fire Management.** A total of 922 acres of public land would be managed under the fire suppression category and would be identified as conditional suppression areas. A total of 973 acres would be managed under the fire-use category where fire would be utilized as a management tool. Planned or natural ignitions meeting pre-determined prescriptions would be allowed on these areas.

### MANAGEMENT UNIT C-3

*377 Acres of Public Surface; less than 1 percent of the Planning Area*

Management Unit C-3 is comprised of two tracts totalling 377 acres of public land eight miles east of Montrose. The smaller tract is north of Highway 50 and the larger tract is south of the highway. The tracts contain the largest population of the endangered clay-loving wild buckwheat in the planning area and also have significant populations of Montrose penstemon, a candidate species.

The management unit would be designated as the Fairview Area of Critical Environmental Concern (ACEC). Plant monitoring studies would be developed in cooperation with the Colorado Natural Areas Program and actions designed to improve habitat conditions would be initiated. Surface-disturbing activities would be restricted or eliminated to protect the threatened and endangered species and their potential habitat.

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**Oil and Gas.** Federal oil and gas estate would be open to leasing with a no surface occupancy stipulation.

**Locatable Minerals.** Federal mineral estate would be withdrawn from entry and location.

**Mineral Materials.** Federal mineral estate would be closed to disposal of mineral materials.

**Livestock Grazing.** Livestock grazing would be eliminated in the management unit.

**Off-Road Vehicles.** Vehicle use would be prohibited in the management unit.

**Major Utilities.** The management unit would be closed to development of additional major utility facilities.

**Fire Management.** The management unit (377 acres) would be managed under the fire suppression category and would be identified as a conditional suppression area.

### MANAGEMENT UNIT C-4

#### *6,385 Acres of Public Surface; 1 percent of the Planning Area*

The 6,385 acres of riparian zones that comprise Management Unit C-4 occur throughout the planning area and are generally associated with perennial or intermittent streams. These areas have a very high productive capability and are very important in maintaining the water quality of the adjacent streams.

The management unit would be managed to restore and enhance riparian vegetation along 51 miles of streams. Objectives and projects designed to accelerate improvement of species diversity, streambank cover and stability, and instream structure, and to raise the water table would be incorporated into existing activity plans or developed in new riparian management plans. All areas would be intensively monitored for vegetation, aquatic habitat, and erosion conditions. No surface-disturbing activities, including road construction, would be permitted if the riparian zone would be adversely affected.

**Coal.** No coal mining facilities or related surface disturbances would be permitted along 3.5 linear miles (368 acres) of Jay Creek.

**Oil and Gas.** Federal oil and gas estate would be open to leasing with a no surface occupancy stipulation.

**Mineral Materials.** Federal mineral estate would be closed to disposal of mineral materials.

**Wildlife Habitat.** Habitat would be managed for wintering deer and elk. Naturally-appearing structures would be placed in Cottonwood, Monitor, Potter, and Jay creeks if necessary to improve aquatic habitat.

**Livestock Grazing.** Livestock movements would be restricted, if necessary, to reduce trailing and surface disturbance in riparian zones. Livestock use would be limited to 35 percent utilization by weight of key forage species and eliminated from March 1 through May 31. Livestock grazing would be eliminated entirely on 320 acres of Roubideau Creek as prescribed in the Uncompahgre Basin Grazing ES.

**Forestry.** Riparian areas would be closed to harvest of woodland products.

**Recreation.** The scenic quality of riparian areas would be protected.

**Off-Road Vehicles.** Vehicle use in riparian areas would be limited to designated roads and trails.

**Visual Resources.** Riparian areas would be managed within VRM Class II guidelines.

**Major Utilities.** Development of major utility facilities would be permitted in the management unit only if activities would not result in surface disturbance.

**Acquisition of Non-Federal Lands.** If they are available, non-federal lands that would be necessary for effective management of riparian areas would be acquired.

**Fire Management.** A total of 4,040 acres of public land would be managed under the fire suppression category, with 1,998 acres identified for intensive suppression and 2,042 acres identified for conditional suppression. A total of 2,345 acres would be managed under the fire-use category where fire would be utilized as a management tool. Planned or natural ignitions meeting pre-determined prescriptions would be allowed on these areas.

### MANAGEMENT UNIT C-5

#### *2,738 Acres of Public Surface; less than 1 percent of the Planning Area*

Management Unit C-5 consists of eight separate tracts, totalling 2,738 acres, southwest of Olathe. Studies in these areas have revealed several important cultural discoveries and a high probability for concentrations of additional high-value archeological sites.

The management unit would be managed as a Current Scientific Use Area. The integrity of the cultural resources, including visual qualities of the immediate area, would be protected. Surface-disturbing activities would not be permitted until a Class III cultural inventory (100 percent field survey) could be completed. Upon completion of this inventory, significant cultural sites would be assigned another appropriate use category such as Conservation for Future Study or Public Education Use. All other sites would be discharged from special cultural resource management categories and would be managed consistent with the

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prescription for the surrounding crucial deer and elk winter range (Management Unit C-13).

**Oil and Gas.** Federal oil and gas estate would be open to leasing with a no surface occupancy stipulation.

**Locatable Minerals.** Federal mineral estate would be withdrawn from mineral entry and location.

**Mineral Materials.** Federal mineral estate would be closed to disposal of mineral materials.

**Wildlife Habitat.** Land treatment projects would not be permitted.

**Livestock Grazing.** Activities or new facilities that would result in livestock herd concentration (i.e., salting, vegetation manipulation, or water facilities) would not be permitted.

**Forestry.** Management and harvest of woodland products would be eliminated.

**Off-Road Vehicles.** Vehicle use within the management unit would be limited to designated roads and trails yearlong.

**Visual Resources.** The management unit would be managed under VRM Class II guidelines.

**Major Utilities.** Development of major utility facilities would not be permitted.

**Fire Management.** A total of 1,195 acres of public land would be managed under the fire suppression category and identified for conditional suppression. A total of 1,543 acres would be managed under the fire-use category where fire would be utilized as a management tool. Planned or natural ignitions meeting pre-determined prescriptions would be allowed on these areas.

### MANAGEMENT UNIT C-6

#### *40,792 Acres of Public Surface; 8 percent of the Planning Area*

Management Unit C-6 consists of the 40,792 acres of public lands surrounding the Gunnison Gorge. The management unit is characterized by a diversity of landscapes and high-value recreation opportunities. The need to protect both the quality and diversity of recreation opportunities, and to facilitate recreation use would be recognized as being foremost in importance during the formulation of management decisions affecting the area.

The management unit would be managed as the Gunnison Gorge Special Recreation Management Area (SRMA). Maps, interpretive materials, and facilities would be developed. Recreation use would be monitored and possibly restricted as necessary to protect natural features and recreation opportunities.

Lands in the Peach Valley, Elephant Skin Wash, and Black Ridge areas (a total of 25,584 acres) would be managed for ORV recreation opportunities. A minimum of restrictions would be placed on surface-disturbing activities that do not impede or endanger ORV recreationists. A high concentration of recreation users would be permitted within these areas.

Motorized access to the remainder of the management unit (15,208 acres) would be restricted to designated roads, the majority of which are primitive in character. This area would be managed to maintain a predominantly natural environment with low but evident human concentrations and impacts.

**Oil and Gas.** Federal oil and gas estate would be open to leasing. Lands in the Gunnison Forks area and between the western rim of the Gunnison Gorge and Peach Valley (15,208 acres) would be managed with a no surface occupancy stipulation to protect scenic values.

**Locatable Minerals.** Federal mineral estate on 25,584 acres would be open to entry and location. The remaining 15,208 acres would be withdrawn from entry and location to protect recreation opportunities. This mineral withdrawal would be a net increase of 6,658 acres over the existing situation.

**Mineral Materials.** Federal mineral estate on 25,584 acres would be open to disposal of mineral materials. The remaining 15,208 acres would be closed to disposal of mineral materials to protect recreation opportunities.

**Soils and Water Resources.** The Elephant Skin Wash salinity control project would be maintained to reduce saline runoff.

**Wildlife Habitat.** The Gunnison Forks habitat management area (140 acres) would be managed for wildlife values. Habitat in the lower Smith Fork Canyon (2,250 acres) would be managed for bighorn sheep.

**Livestock Grazing.** Construction of facilities that create safety hazards or impede free vehicle use, such as fences, would not be permitted on 25,584 acres of designated open ORV areas.

**Forestry.** A 1,255-acre portion of the 2,500 acres of harvestable woodlands within the management unit would be available for management and harvest. These available woodlands are located on Black Ridge. This area would be closed to harvest from December 1 through April 30 to protect crucial deer and elk winter range. The remaining harvestable woodlands (1,245 acres) would be managed for scenic and relic-area values and would not be harvested.

**Off-Road Vehicles.** Vehicle use would be allowed on 25,584 acres that are suitable and utilized for ORV recreation in the Peach Valley, Elephant Skin Wash, and Black Ridge

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areas. Vehicle use on the remaining 15,208 acres of the management unit would be limited to designated roads and trails to protect natural and scenic values.

**Visual Resources.** The 25,584 acres open to ORV use would be managed under VRM Class IV guidelines. The remaining 15,208 acres would be managed under VRM Class II guidelines.

**Major Utilities.** A total of 25,584 acres would be open to but not preferred for major utility development. These lands could be utilized for major utility development if there are no feasible alternatives. The remaining 15,208 acres would be closed to new major utility development to protect natural and scenic values.

**Acquisition of Non-Federal Lands.** Actions would be initiated to acquire six tracts of non-federal lands (totalling 2,100 acres) that would be necessary to facilitate public access and enhance recreational values.

**Acquisition of Access.** Public access would be acquired along the Gunnison Gorge rim southwest of the Gunnison Forks for recreation purposes.

**Fire Management.** A total of 26,517 acres of public land would be managed under the fire suppression category and identified for conditional suppression. A total of 14,275 acres would be managed under the fire-use category where fire would be utilized as a management tool. Planned or natural ignitions meeting pre-determined prescriptions would be allowed on these areas.

### MANAGEMENT UNIT C-7

#### *80 Acres of Public Surface; less than 1 percent of the Planning Area*

Management Unit C-7 is an 80-acre site consisting mainly of a volcanic structure with high-value scientific, interpretive and scenic characteristics. A shelter facility and interpretive nature trail have been developed in the area. Needle Rock is part of the Colorado Natural Areas Program and is one of the significant public land geologic features in Colorado as identified by the BLM's Geologic Advisory Group.

The management unit is currently designated as the Needle Rock Outstanding Natural Area (ONA). This designation precludes surface-disturbing activities that are not consistent with management of the area for natural, scenic, and educational values. The area would be managed to protect these values and for recreation opportunities (sightseeing, picnicking, and geologic study) in a roaded but natural environment. The ONA designation would be retained and a management plan would be developed.

**Oil and Gas.** Federal oil and gas estate would remain open to leasing with a no surface occupancy stipulation.

**Locatable Minerals.** Federal mineral estate would remain withdrawn from mineral entry and location.

**Mineral Materials.** Federal mineral estate would be closed to disposal of mineral materials.

**Livestock Grazing.** The management unit would remain unallotted for livestock grazing use.

**Off-Road Vehicles.** Vehicle use within the management unit would be limited to designated roads and trails.

**Visual Resources.** The management unit would be managed under VRM Class I guidelines.

**Major Utilities.** The management unit would be closed to development of major utility facilities.

**Fire Management.** The entire management unit would be managed under the fire suppression category and identified for intensive suppression.

### MANAGEMENT UNIT C-8

#### *8,942 Acres of Public Surface; 2 percent of the Planning Area*

Management Unit C-8 is 8,942 acres of public land northeast of Delta that consists of Mancos shale (adobe badlands) hills with little vegetative cover. The area is suitable and utilized for ORV recreation. ORV activities typically involve local residents and occur during the spring, fall, and winter.

The management unit would be designated as the North Delta Off-Road Vehicle Special Recreation Management Area (SRMA). Recreational and competitive ORV use would be encouraged and a high concentration of recreation users would be permitted within the management unit. Some facilities (informational signs, motorcycle loading ramps) would be developed. A minimum of restrictions would be placed on surface-disturbing activities that do not impede or endanger ORV recreationists. Following designation as an SRMA, a recreation area management plan would be completed.

**Livestock Grazing.** Livestock grazing would continue in the management unit but construction of facilities, such as fences, that create safety hazards or impede free vehicle use would not be permitted.

**Visual Resources.** The management unit would be managed under VRM Class IV guidelines.

**Major Utilities.** The management unit would be open to development of major utility facilities.

**Fire Management.** A total of 8,942 acres of public land would be managed under the fire suppression category and identified for conditional suppression.

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### MANAGEMENT UNIT C-9

#### *353 Acres of Public Surface; less than 1 percent of the Planning Area*

Management Unit C-9 is 353 acres of public land adjacent to 12 miles of the lower Gunnison River.

The management unit would be designated as the Lower Gunnison River Special Recreation Management Area (SRMA). River access points would be developed. Maps and informational materials pertaining to boating opportunities would be provided. Activities and land uses would be permitted that are consistent with maintaining float-boating opportunities within a scenic and predominantly unmodified river environment. The management unit would be managed in a manner that would minimize recreational impacts on the interspersed private lands also adjacent to the Gunnison River.

**Oil and Gas.** Federal oil and gas estate would be open to leasing with a no surface occupancy stipulation.

**Locatable Minerals.** Federal mineral estate would remain withdrawn from entry and location.

**Mineral Materials.** Federal mineral estate would be closed to disposal of mineral materials.

**Major Utilities.** The management unit would be closed to development of major utility facilities.

**Fire Management.** A total of 353 acres of public land would be managed under the fire suppression category and identified for conditional suppression.

### MANAGEMENT UNIT C-10

#### *1,520 Acres of Public Surface; less than 1 percent of the Planning Area*

Management Unit C-10 consists of 1,520 acres of public land on Storm King Peak.

The management unit would be available for development as a commercial downhill ski area. In response to future demand, these lands could be utilized for trails, ski runs, and ski area facilities.

**Coal.** No coal mine surface facility development or mining techniques that allow for the surface effects of subsidence would be permitted on new leases. Facility development and mining techniques that allow for surface subsidence would be avoided whenever feasible on existing coal leases.

**Oil and Gas.** Federal oil and gas estate would be open to leasing with a no surface occupancy stipulation.

**Livestock Grazing.** Livestock grazing would be eliminated during and after ski area development.

**Forestry.** Commercial forest management would be eliminated in the ski area. Timber harvesting would be permitted during ski area construction if compatible with the development plans.

**Major Utilities.** No new development of major utility facilities would be permitted.

**Fire Management.** A total of 1,520 acres of public land would be managed under the fire suppression category and identified for intensive suppression.

### MANAGEMENT UNIT C-11

#### *21,703 Acres of Public Surface; 5 percent of the Planning Area*

Management Unit C-11, totalling 21,703 acres and located primarily on the lower slopes of the Uncompahgre Plateau, is within the pinyon-juniper and sagebrush vegetation types. Soil erosion, accelerated by past surface disturbance, has stripped much of the surface soil horizons from these areas and has substantially reduced soil productivity.

The management unit would be managed to reduce soil erosion. In-channel structures and land treatment projects designed to reduce runoff, erosion, and sedimentation would be developed, and surface protection measures would be implemented. Vegetative cover would be increased. Surface-disturbing activities would be curtailed from March 1 through May 31 when saturated soils are most vulnerable to damage. Activities and land uses which are consistent with maintaining the soil and vegetative conditions necessary to improve and maintain these areas would be permitted.

### MANAGEMENT UNIT C-12

#### *26,578 Acres of Public Surface; 6 percent of the Planning Area*

Management Unit C-12, totalling 26,578 acres, consists of Mancos shale hills commonly known as "adobe badlands". These highly erodible soils, combined with a lack of protective vegetation, can produce sediment loads in local watersheds that are high in salinity. High precipitation runoff rates from the adobes contribute to overall salinity levels in the Upper Colorado River Basin. Salinity yields are increased within localized areas due to increased erosion from surface-disturbing activities including ORV use and livestock grazing.

The management unit would be managed to reduce salinity loads in the Upper Colorado River Basin. Management practices would be the same as those for Management Unit C-11. Measures designed to reduce saline groundwater infusions to surface water systems would also be implemented.

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The following prescribes the management of other resources in both **Management Unit C-11** and **Management Unit C-12**. The acreage figures represent the combined totals of both of these soils and water resources management units.

**Oil and Gas.** Federal oil and gas estate would be open to leasing. A seasonal stipulation on seismic and drilling activities would be in effect from March 1 through May 31 to protect erodible and saline soils. An additional seasonal stipulation on oil and gas exploration activities would be in effect on 16,957 acres of crucial deer and elk winter range from December 1 through April 30 to protect wintering deer and elk.

**Mineral Materials.** Federal mineral estate would be closed to disposal of mineral materials from March 1 through May 31 to protect erodible and saline soils. Approximately 3,700 acres on Monitor Mesa would be closed to disposal of mineral materials to protect bighorn sheep habitat.

**Wildlife Habitat.** Habitat in the Monitor Mesa erosion control area (3,700 acres) would be managed for bighorn sheep. No new road construction, development of major public utility facilities, or other disturbances would be permitted. A total of 16,957 acres south of Paonia and west of Montrose and Olathe would be managed as crucial deer and elk winter range.

**Livestock Grazing.** Livestock grazing would be eliminated from March 1 through May 31 to protect plant species during the spring growth period, and to prevent soil disturbance when saturated soils are most vulnerable to damage. To increase basal ground cover, livestock and wildlife would be limited to 35 percent utilization of key forage species.

**Forestry.** No woodland product harvests would be permitted on 1,834 acres from March 1 through May 31 to prevent soil disturbance.

**Off-Road Vehicles.** Vehicle use within these two management units would be limited to designated roads and trails to prevent soil disturbance from ORV use.

**Major Utilities.** The erosion control/bighorn sheep area on Monitor Mesa (3,700 acres) would be closed to development of major utility facilities. All other areas would be open to utility development but no surface-disturbing activities would be permitted from March 1 through May 31. Crucial deer and elk winter range (16,957 acres) would be closed to surface-disturbing activities from December 1 through April 30.

**Fire Management.** A total of 33,039 acres of public land would be managed under the fire suppression category, with 9,359 acres identified for intensive suppression and 23,680 acres identified for conditional suppression. A total of 15,242 acres would be managed under the fire-use category where fire would be utilized as a management

tool. Planned or natural ignitions meeting pre-determined prescriptions would be allowed in these areas.

### MANAGEMENT UNIT C-13

#### *102,807 Acres of Public Surface; 21 percent of the Planning Area*

Management Unit C-13 consists of 102,807 acres of public land located primarily on the Uncompahgre Plateau and in the lower elevations of the North Fork Valley. Both of these areas have large wintering deer and elk populations. Approximately 92,000 acres of the management unit is considered crucial deer and elk winter range.

The unit would be managed to improve the areas' capabilities to support wintering deer and elk populations. Land treatment projects and other facilities designed to improve the quality and quantity of winter habitat would be developed. All additional forage would be allocated to wildlife. All other land uses would be permitted if they would not degrade the areas' winter range capabilities. Disturbances would be minimized from December 1 through April 30 on crucial deer and elk winter range (92,000 acres).

**Coal.** Federal coal estate totalling 2,880 acres within the Bookcliff and Paonia/Somerset coal areas would be unsuitable for development of above-ground mine and ancillary facilities.

**Oil and Gas.** Federal oil and gas estate would be open to leasing with a seasonal stipulation on seismic and drilling activities in effect from December 1 through April 30 on crucial deer and elk winter range.

**Mineral Materials.** Federal mineral estate would be closed to disposal of mineral materials from December 1 through April 30.

**Forestry.** No woodland product harvesting would be permitted in the management unit from December 1 through April 30. Woodlands which were eliminated to increase forage production would not be permitted to re-establish.

**Off-Road Vehicles.** Vehicle use within the management unit would be limited to designated roads and trails from December 1 through April 30.

**Major Utilities.** The management unit would be open to development of major utility facilities but no construction activities would be permitted from December 1 through April 30 on crucial deer and elk winter range.

**Acquisition of Non-Federal Lands.** If they are available, non-federal lands that would be necessary for effective management of crucial deer and elk winter habitat would be acquired.

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**Fire Management.** A total of 68,510 acres of public land would be managed under the fire suppression category, with 41,980 acres identified for intensive suppression and 26,530 acres identified for conditional suppression. A total of 34,297 acres would be managed under the fire-use category where fire would be utilized as a management tool. Planned or natural ignitions meeting pre-determined prescriptions would be allowed on these areas.

### MANAGEMENT UNIT C-14

#### *1,712 Acres of Public Surface; less than 1 percent of the Planning Area*

Management Unit C-14 consists of 1,712 acres of public land in the High Park area 20 miles southeast of Montrose. The management unit ranges from 8,500 feet to over 10,000 feet in elevation, and is used extensively as an elk calving area in the spring. The largest commercial timber stands in the planning area exist in this unit.

The management unit would be managed to enhance its use as an elk calving area. Any disturbance during the calving season (April 15 through July 15) would be limited as much as possible. Habitat in elk calving areas would be improved and all new forage would be allocated to wildlife.

**Coal.** Surface mine facilities would be avoided on existing coal leases and not permitted on new coal leases on 1,600 acres of the Cimarron Ridge coal area.

**Oil and Gas.** Federal oil and gas estate would be open to leasing with a seasonal stipulation on seismic and drilling activities in effect from April 15 through July 15 to prevent disturbance of calving elk.

**Forestry.** No timber harvesting activities or surface disturbance would be permitted in elk calving areas from April 15 through July 15. New roads constructed for timber management or harvesting would be closed to public use.

**Off-Road Vehicles.** Vehicle use within the management unit would be limited to designated roads and trails from April 15 through July 15.

**Major Utilities.** Public lands would be open to development of major utility facilities but no surface-disturbing activities would be permitted in elk calving areas from April 15 through July 15.

**Fire Management.** A total of 1,712 acres of public land would be managed under the fire suppression category, with 1,695 acres identified for intensive suppression and 17 acres identified for conditional suppression.

### MANAGEMENT UNIT C-15

#### *25,927 Acres of Public Surface; 5 percent of the Planning Area*

Management Unit C-15 is in the northwest corner of the planning area. The management unit (25,927 acres of public land) provides yearlong habitat for an estimated 130 pronghorn antelope, and is grazed by sheep primarily during the winter. Several major powerlines bisect the unit.

The management unit would be managed to maintain and improve the area's antelope habitat. Forage and water sources would be maintained or improved. Disturbance of antelope would be minimized during the kidding season (June 1 through June 30). Construction of new permanent roads would not be permitted.

**Oil and Gas.** Federal oil and gas estate would be open to leasing with a seasonal stipulation on seismic and drilling activities in effect from June 1 through June 30.

**Mineral Materials.** Federal mineral estate would be closed to disposal of mineral materials from June 1 through June 30.

**Livestock Grazing.** Current livestock classes and seasons of use would be maintained.

**Major Utilities.** Public land would be open to development of major utility facilities but no construction activities would be permitted from June 1 through June 30.

**Special Land Uses.** No special land use permits authorizing military maneuvers, off-road vehicle competitions, or similar events within the management unit would be issued.

**Fire Management.** A total of 25,625 acres of public land would be managed under the fire suppression category, with 1,183 acres identified for intensive suppression and 24,442 acres identified for conditional suppression. A total of 302 acres would be managed under the fire-use category where fire would be utilized as a management tool. Planned or natural ignitions meeting pre-determined prescriptions would be allowed on these areas.

### MANAGEMENT UNIT C-16

#### *17,032 Acres of Public Surface; 4 percent of the Planning Area*

Management Unit C-16 is comprised of public lands on Fruitland Mesa south of Crawford (12,614 acres) and on Simms Mesa southwest of Montrose (4,418 acres). The unit contains numerous sage grouse strutting grounds and provides winter sage grouse habitat. The entire management unit is grazed by livestock; approximately one-third of the area is crucial deer and elk winter range.

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The management unit would be managed to improve sage grouse wintering habitat and to increase sagebrush cover. Disturbances would be restricted near established strutting grounds from March 15 to June 1. Crucial deer and elk winter range would be protected from surface-disturbing activities from December 1 through April 30.

**Oil and Gas.** Federal oil and gas estate would be open to leasing with a seasonal stipulation on seismic and drilling activities in effect on strutting grounds from March 15 to June 1. An additional seasonal stipulation on oil and gas exploration activities would be in effect from December 1 through April 30 on crucial deer and elk winter ranges.

**Mineral Materials.** Federal mineral estate in the Simms Mesa strutting grounds would be closed to disposal of mineral materials from March 15 to June 1.

**Livestock Grazing.** No land treatments would be permitted on sage grouse wintering and strutting grounds. Land treatments in all other areas would have at least a 20 percent sagebrush composition and two sagebrush islands of five acres in every 100 acres of treatment.

**Off-Road Vehicles.** Vehicle use on crucial deer and elk winter ranges within the management unit would be limited to designated roads and trails from December 1 through April 30.

**Fire Management.** A total of 6,590 acres of public land would be managed under the fire suppression category, with 4,428 acres identified for intensive suppression and 2,162 acres identified for conditional suppression. A total of 10,442 acres would be managed under the fire-use category where fire would be utilized as a management tool. Planned or natural ignitions meeting pre-determined prescriptions would be allowed on these areas.

### MANAGEMENT UNIT C-17

#### *10,707 Acres of Public Surface; 2 percent of the Planning Area*

Management Unit C-17 consists of several parcels of public land, totalling 10,707 acres, that have potential for development for waterfowl use and production. These public lands are near existing reservoirs, along the Gunnison River, or in the vicinity of areas with heavy waterfowl concentrations.

The management unit would be managed to improve waterfowl habitat. Adequate cover, wetlands, and nesting structures would be provided. Disturbance would be minimized during the breeding and nesting season (March 15 through June 30). Activities and land uses that are consistent with maintaining waterfowl habitat characteristics would be permitted.

**Oil and Gas.** Federal oil and gas estate would be open to leasing with a seasonal stipulation on seismic and drilling activities in effect from March 15 through June 30.

**Mineral Materials.** Federal mineral estate would be closed to disposal of mineral materials from March 15 through June 30.

**Off-Road Vehicles.** Vehicle use in the management unit would be limited to designated roads and trails.

**Acquisition of Non-Federal Lands.** If they are available, non-federal lands and associated water rights that would be necessary to increase waterfowl habitat would be acquired.

**Fire Management.** A total of 127 acres of public land would be managed under the fire suppression category and would be identified for intensive suppression.

### MANAGEMENT UNIT C-18

#### *61,490 Acres of Public Surface; 13 percent of the Planning Area*

Management Unit C-18, totalling 61,490 acres of public land, is comprised of numerous perennial streams in poor or fair condition and their watersheds primarily in the northern half of the planning area. The management unit provides waterfowl nesting sites and winter habitat for deer and elk, of which approximately 14,000 acres is crucial habitat. Most of the unit is grazed by domestic livestock.

The management unit would be managed to improve aquatic habitat and crucial deer and elk winter range, protect waterfowl nesting areas, and reduce sediment loads. Surface-disturbing activities, including road construction, would be restricted along 76 linear miles of aquatic habitat. Structures would be developed to improve streambank conditions and reduce erosion. The roads in Potter Creek (five miles) and the Dry Fork of Escalante Creek (two miles) would be closed to improve streambank and channel stability.

**Coal.** No coal mining facilities or related surface disturbances would be permitted on 1,440 acres of aquatic corridors along Roatcap, Terror, and Bear creeks.

**Oil and Gas.** Federal oil and gas estate within aquatic corridors would be open to leasing with a no surface occupancy stipulation. Crucial deer and elk winter range not within aquatic corridors would be open to oil and gas leasing with a seasonal stipulation on seismic and drilling activities in effect from December 1 through April 30.

**Mineral Materials.** Federal mineral estate within aquatic corridors would be closed to disposal of mineral materials. Crucial deer and elk winter ranges not within aquatic corridors would be closed to disposal activity from December 1 through April 30. Waterfowl habitat areas not within

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aquatic corridors would be closed to disposal of mineral materials from March 15 to July 1.

**Livestock Grazing.** In aquatic corridors, livestock grazing would be limited to 35 percent utilization of key forage species, eliminated from March 1 through May 31, and restricted as necessary to reduce trailing and surface disturbance.

**Forestry.** Aquatic corridors would be closed to forest and woodland management. No timber or woodland product harvests would be permitted in crucial deer and elk wintering areas from December 1 through April 30.

**Off-Road Vehicles.** Vehicle use in aquatic corridors would be limited to designated roads and trails.

**Major Utilities.** Development of major utility facilities resulting in surface disturbance would not be permitted within aquatic corridors. Crucial deer and elk wintering areas would be closed to major utility development from December 1 through April 30.

**Acquisition of Access.** Public access would be acquired into the Terror Creek area for recreation and administrative purposes.

**Fire Management.** A total of 36,518 acres of public land would be managed under the fire suppression category, with 10,011 acres identified for intensive suppression and 26,507 acres identified for conditional suppression. A total of 24,972 acres would be managed under the fire-use category where fire would be utilized as a management tool. Planned or natural ignitions meeting pre-determined prescriptions would be allowed on these areas.

### MANAGEMENT UNIT C-19

*1,280 Acres of Public Surface; less than 1 percent of the Planning Area*

Management Unit C-19 consists of 1,280 acres of public land located at the higher elevations of the planning area. The forests in the management unit are predominantly overmature stands of spruce-fir with some ponderosa pine. These forest lands provide deer and elk habitat and elk calving areas, and have some recreational hunting use.

The management unit would be managed for sustained yield production of the forest resource within the allowable cut restrictions determined by the TPCC inventory (1,280 acres).

### MANAGEMENT UNIT C-20

*27,522 Acres of Public Surface; 6 percent of the Planning Area*

Management Unit C-20 consists of 27,522 acres of public land located primarily on the northeast-facing slopes of the Uncompahgre Plateau. The management unit contains some of the most productive pinyon-juniper woodland sites in the planning area. They are used extensively for livestock grazing and are valuable deer and elk habitat.

The management unit would be managed for sustained yield production of the woodland resource within the allowable cut restrictions determined by the TPCC inventory (27,522 acres).

The following prescribes the management of other resources in both **Management Unit C-19** and **Management Unit C-20**. The acreage figures represent the combined totals of both management units.

**Wildlife Habitat.** No additional land treatments that would result in reductions in the timber or woodland base would be permitted.

**Livestock Grazing.** No additional land or vegetative treatments that would result in reductions in the timber or woodland base would be permitted.

**Acquisition of Access.** Public access would be acquired into the Oak Mesa area for woodland harvest and administrative purposes.

**Fire Management.** A total of 18,367 acres of public land would be managed under the fire suppression category, with 11,187 acres identified for intensive suppression and 7,180 acres identified for conditional suppression. A total of 10,435 acres would be managed under the fire-use category where fire would be utilized as a management tool. Planned or natural ignitions meeting pre-determined prescriptions would be allowed in these areas.

### MANAGEMENT UNIT C-21

*31,062 Acres of Public Surface; 6 percent of the Planning Area*

Management Unit C-21 is 31,062 acres of public land located throughout the planning area. The management unit is used extensively for livestock grazing.

Public lands within the management unit would be managed as "I" category grazing allotments. Livestock grazing use would be managed at current forage allocation levels based on the Uncompahgre Basin Range Management Program and RPS updates. Livestock numbers would be adjusted when forage utilization studies indicate changes are necessary to achieve AMP objectives.

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The management unit would be managed to improve vegetation conditions and forage availability for livestock grazing. Riparian zones would be protected. Land treatment projects and other facilities designed to improve livestock forage and distribution would be developed. Intensive monitoring studies would be established and maintained on all grazing allotments. Existing AMPs would be updated as needed and new AMPs would be developed for allotments without plans. As additional forage becomes available, livestock would have priority for allocation. Relinquished, cancelled, or acquired livestock grazing permits would be reissued according to regulations.

**Off-Road Vehicles.** Vehicle use on adobe soils within the management unit would be limited to designated roads and trails.

**Major Utilities.** The management unit would be open to development of major utility facilities but no disturbance would be permitted in riparian areas.

**Acquisition of Non-Federal Lands.** Procedures would be initiated to acquire Colorado DOW lands that are needed to enhance livestock grazing management.

**Acquisition of Access.** Public access would be acquired into the Oak Ridge and Spaulding Peak/Dry Creek areas for recreation and administrative purposes.

**Fire Management.** A total of 24,147 acres of public land would be managed under the fire suppression category, with 13,600 acres identified for intensive suppression and 10,547 acres identified for conditional suppression. A total of 6,915 acres would be managed under the fire-use category where fire would be utilized as a management tool. Planned or natural ignitions meeting pre-determined prescriptions would be allowed on these areas.

### MANAGEMENT UNIT C-22

#### *5,453 Acres of Public Surface; 1 percent of the Planning Area*

Management Unit C-22 consists of federal oil and gas estate totalling 30,125 acres. A 5,453-acre portion of this federal oil and gas estate underlies federal surface estate. A KGS is located adjacent to the northwestern boundary of the management unit.

The management unit would be managed for oil and gas development. All federal oil and gas estate within the unit would be open to leasing with standard lease terms. Activities and land uses that are consistent with maintaining the oil and gas development potential of the area would be permitted.

**Fire Management.** A total of 5,453 acres of public land would be managed under the fire suppression category,

with 1,696 acres identified for intensive suppression and 3,757 acres identified for conditional suppression.

### MANAGEMENT UNIT C-23

#### *722 Acres of Public Surface; less than 1 percent of the Planning Area*

Management Unit C-23 consists of federal oil, gas, and geothermal estate totalling 4,875 acres. A 722-acre portion of this federal oil, gas, and geothermal estate underlies federal surface estate. The management unit is considered prospectively valuable for geothermal resources because geothermal development is occurring on contiguous lands outside of the planning area boundary.

The management unit would be managed for oil, gas, and geothermal development. All federal oil, gas, and geothermal estate within the unit would be open to leasing with standard lease terms. Activities and land uses that are consistent with maintaining the oil, gas, and geothermal development potential of the area would be permitted.

**Forestry.** Federal reserve timber (123 acres) on 160 acres of land deeded to the Girl Scouts of America would be removed from the timber base and not considered for harvest. The management and harvest of this timber would be inconsistent with use of the land as a Girl Scout camp.

**Fire Management.** A total of 722 acres of public land would be managed under the fire suppression category, with 67 acres identified for intensive suppression and 655 acres identified for conditional suppression.

### MANAGEMENT UNIT C-24

#### *9,113 Acres of Public Surface; 2 percent of the Planning Area*

Management Unit C-24 consists of 75,930 acres of federal coal estate. A 9,113-acre portion of this federal coal estate underlies federal surface estate.

The management unit would be managed for both existing and potential coal development. Development of existing coal leases would continue, and unleased federal coal would be identified as acceptable for further coal leasing consideration with a minimum of multiple-use restrictions. Activities and land uses that are consistent with maintaining existing coal operations and the potential for coal development would be permitted.

**Fire Management.** A total of 9,113 acres of public land would be managed under the fire suppression category, with 7,593 acres identified for intensive suppression and 1,520 acres identified for conditional suppression.

## PREFERRED ALTERNATIVE

### MANAGEMENT UNIT C-25

#### *35,022 Acres of Public Surface; 7 percent of the Planning Area*

In general, the public lands in Management Unit C-25 (35,022 acres) would be managed according to the policy assumptions and standard resource program management guidance developed for the Conservation Alternative. No single resource or resource use would have management priority. No activity plans would be written and no major BLM-funded projects or facilities would be developed within this area. Habitat, vegetation, and other resource studies would be minimal. Specific resource management in this area would be prescribed as follows.

**Livestock Grazing.** Public lands totalling 19,913 acres would be managed as "I" category grazing allotments, and 11,399 acres would be managed as "M" category or "C" category grazing allotments.

**Fire Management.** A total of 30,295 acres of public land would be managed under the fire suppression category, with 6,421 acres identified for intensive suppression and 23,874 acres identified for conditional suppression. A total of 4,727 acres would be managed under the fire-use category where fire would be utilized as a management tool. Planned or natural ignitions meeting pre-determined prescriptions would be allowed in these areas.

## PREFERRED ALTERNATIVE

The Preferred Alternative was developed based on an analysis of the other three alternatives. Under this alternative, the planning area would be managed under the multiple-use concept with restrictions applied so that management objectives would be achieved.

All actions proposed under this alternative would comply with current state and federal regulations, standards, and policies. In addition, the following assumptions were made:

1. Site-specific activity plans would be developed or revised, if necessary, to provide detailed management guidance for all management units except the general resource management unit.

2. Site-specific EAs and EISs, if required, would be developed for all management plans and projects within the planning area.

3. Lands cases generated by other agencies, individuals, and entities would be analyzed and approved on a case-by-case basis according to guidance provided by this plan.

4. Existing R&PP land use classifications under lease would be retained with the exception of the Delta County and Montrose County landfills.

5. All WSAs would be managed consistent with the Wilderness Interim Management Policy until the final decision on wilderness designation or non-designation is made.

*Some resource management programs would be standard throughout the planning area under the Preferred Alternative. Unless changes in or additions to standard management directions are specifically addressed in the management prescription for each management unit, these resources, programs, and activities would be managed as follows.*

**Air Quality.** Activities and projects on public land would comply with applicable local, state, and federal air quality regulations. Mitigation to minimize air quality degradation would be incorporated into project proposals as appropriate.

**Coal.** Federal coal estate would be identified as acceptable for further leasing consideration.

**Oil, Gas, and Geothermal Resources.** Federal oil, gas, and geothermal estate would be open to leasing with standard lease terms. All no surface occupancy and seasonal stipulations would apply only to federal surface with federal oil, gas, or geothermal estate. Seasonal stipulations prescribed for the management units would apply to seismic and drilling activities. The most reasonable foreseeable level of oil, gas, and geothermal development throughout the planning area would involve a maximum of ten applications to drill per year, with an estimated total of 30 acres of surface disturbance.

**Locatable Minerals.** All existing mineral withdrawals would be recommended for retention. Federal mineral estate in areas not under withdrawal would be open to entry and location.

**Mineral Materials.** Federal mineral estate would be open to disposal of mineral materials.

**Soils and Water Resources.** Water quality and erosion conditions would be inventoried and monitored. Measures designed to minimize erosion and water quality deterioration would be required in plans for surface-disturbing land use activities. The area would be open to land treatments and development of in-channel structures and project facilities.

**Riparian/Aquatic Systems.** Riparian zones and aquatic habitats would be inventoried and monitored where necessary to provide information for proper management. Vegetation conditions and streambank cover would be maintained or improved. Measures designed to minimize site-specific riparian and aquatic deterioration would be required in plans for surface-disturbing land use activities.

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**Threatened and Endangered Species.** Threatened and endangered species and unique plant associations would be inventoried and monitored where necessary to provide information for proper management. Clearances would be conducted on all proposed surface-disturbing activities and the USFWS would be consulted as required. Measures designed to protect threatened and endangered species and their habitat would be required in all land use activity plans. Supplemental releases and reintroduction of federal and state listed endangered, threatened, and candidate species could be authorized following environmental analysis and consultation with the USFWS, the Colorado DOW, and other affected parties.

**Wildlife Habitat.** Wildlife forage allocations would remain at current levels until studies determine adjustments are needed to achieve management objectives. Additional forage allocations would be divided equally between wildlife and livestock grazing. Wildlife habitat monitoring studies would be established and/or maintained on all crucial winter ranges. The planning area would be open to land treatments and project facility development. Existing wildlife facilities and land treatments would be maintained. Supplemental releases and reintroduction of native or naturalized fish and wildlife species (excluding federal or state listed endangered, threatened, or candidate species) could be authorized by the District Manager following environmental analysis.

**Livestock Grazing.** Suitable public lands would be available for livestock grazing use. Livestock utilization would be managed at current forage allocation levels until studies indicate adjustments are needed to achieve management objectives. New or additional available forage would be divided equally between livestock and wildlife. Existing livestock facilities would be maintained. Existing AMPs would be updated as needed and new AMPs would be developed. New livestock facilities and land treatment projects would be developed if needed to achieve AMP objectives. Vegetation condition and trend monitoring studies would be established and/or maintained. Maximum sustained livestock utilization levels of key forage species would be 50 percent. Allotment categorization would determine management and monitoring intensity.

**Forestry.** Suitable commercial forest lands and pinyon-juniper woodlands would be managed for sustained yield production within the allowable cut restrictions determined by the TPCC inventory.

**Recreation.** Public lands would be managed for extensive recreational use.

**Off-Road Vehicles.** Public lands would be open to ORV use.

**Cultural Resources.** Cultural and historical sites would be inventoried. Clearances would be conducted on sites of all proposed surface-disturbing activities. Measures designed

to protect significant cultural and historical resources would be required in all land use activity plans.

**Paleontological Resources.** Paleontological resources would be inventoried and appropriate protective measures would be developed if necessary.

**Visual Resources.** Public lands would be managed under current VRM classifications and guidelines.

**Major Utilities.** Public lands would be open to development of major utility facilities. Stipulations and mitigating measures would be developed on a case-by-case basis.

**Powersite Withdrawals.** Pending determination of potential existing powersite withdrawals would be maintained. These lands would not be subject to further consideration for disposal. No significant long-term investments would be made on these lands unless the investment could be recovered prior to development.

**Acquisition of Access.** In addition to the specific access needs identified in the management unit prescriptions, the access needs identified in the resource area's transportation plan would be acquired as opportunities arise.

**Fire Management.** Any fire which occurs in a fire use before a prescription is approved, or is outside of the prescription, or threatens life or property, would be suppressed as if it were in a conditional suppression area.

The following management prescriptions comprise the Preferred Alternative. Acreage figures used in this discussion are approximations. Table 3-6 identifies the management units that were established for this alternative.

### DISPOSAL OF PUBLIC LANDS

A total of 169 tracts of public land totalling 27,424 acres would be identified for consideration for disposal through sale or exchange under this alternative. Eight of these tracts (7,824 acres) would be suitable for disposal through exchange only. Existing R&PP classifications on two tracts and existing withdrawals on several tracts would be lifted prior to disposal.

Prior to disposal, resources within identified tracts would be managed according to the management prescription for the management unit in which they are located. Minimal funds, if any, would be spent on improvements on these lands. Federal mineral estate would be conveyed with surface estate where it would be in the public interest.

Table 3-6  
MANAGEMENT UNITS:  
PREFERRED ALTERNATIVE

MANAGEMENT UNIT	ACRES OF PUBLIC SURFACE	PERCENTAGE <sup>1</sup> OF THE PLANNING AREA	IMPORTANT RESOURCES, VALUES, OR LAND USES
D-1	186,810	39%	Livestock grazing, wildlife habitat, recreation, woodlands
D-2	66,110	14%	Wildlife habitat, coal, woodlands
D-3	47,607	10%	Woodlands, wildlife habitat, livestock grazing
D-4	40,792	8%	Recreation, soils, woodlands
D-5	30,720	6%	Soils, recreation, oil and gas
D-6	21,038	4%	Wilderness, recreation, T&E species
D-7	17,232	4%	Coal, wildlife habitat
D-8	8,942	2%	Recreation, soils
D-9	6,320	1%	Riparian/aquatic habitat, livestock grazing
D-10	3,292	Less than 1%	Wildlife habitat, coal, recreation, commercial timber
D-11	1,990	Less than 1%	Wildlife habitat, recreation
D-12	1,895	Less than 1%	Recreation, T&E species
D-13	377	Less than 1%	T&E species, soils
D-14	80	Less than 1%	Recreation, scientific values
D-15	49,872	10%	General land uses

<sup>1</sup> Percentages are rounded to whole numbers.

**MANAGEMENT UNIT D-1**

***186,810 Acres of Public Surface; 39 percent of the Planning Area***

Management Unit D-1 consists of 186,810 acres of public land located primarily on the northeast-facing slopes of the Uncompahgre Plateau north of Colorado Highway 90. The area's range of elevations gives it a high value for both summer and winter livestock grazing.

Public lands within the management unit would be managed as "I" category (150,114 acres), "M" category (25,727 acres), and "C" category (8,950 acres) grazing allotments. Also, 2,019 acres that are presently unallotted for livestock use would be available for grazing application.

The management unit would be managed to improve vegetation conditions and forage availability for livestock grazing. Land treatment projects and other facilities designed to improve livestock forage and distribution would be developed. Intensive monitoring studies would be established and maintained on all "I" and "M" category allotments. Existing AMPs would be updated as needed and new AMPs would be developed for allotments without plans. As additional forage becomes available, livestock would have priority for allocation. Relinquished, cancelled, or acquired livestock grazing permits would be reissued according to regulations.

**Oil and Gas.** Federal oil and gas estate would be open to leasing. Seasonal stipulations on seismic and drilling activities would be in effect from December 1 through April 30 on 64,815 acres of crucial deer and elk winter range, and on 3,757 acres used by bald eagles for hunting habitat.

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Variances to this seasonal stipulation may be granted on a case-by-case basis.

**Locatable Minerals.** The withdrawals on Fruitland Mesa and along the Gunnison River would be recommended for revocation to allow for mineral exploration and development, facilitate resource management, and permit long-term planning. Federal mineral estate would be open to entry and location.

**Soils and Water Resources.** Non-conflicting erosion control objectives, projects, and mitigating measures would be incorporated into new and existing AMPs. In-channel structures and land treatment projects designed to reduce runoff and soil erosion would be developed.

**Wildlife Habitat.** Non-conflicting wildlife habitat management objectives, projects, and mitigating measures would be incorporated into new and existing AMPs. Existing wildlife habitat projects would be maintained. Bighorn sheep would be transplanted into the Winter Mesa area if they would not conflict with current and future livestock grazing forage allocations. Wildlife would have first priority for all additional forage made available as a result of non-BLM wildlife-funded rangeland improvement projects.

**Forestry.** Woodland harvest areas would be managed for increased forage production and would be compatible with AMPs.

**Recreation.** River access would be developed at Escalante Bridge. Maps and informational materials on river use would be provided. The BLM would manage recreation use in a manner that would minimize recreational impacts on interspersed and adjacent private land.

**Off-Road Vehicles.** The management unit would be open to ORV use except for crucial deer and elk winter range (64,815 acres) where vehicle use would be limited to designated roads and trails from December 1 through April 30 if necessary to reduce stress on wintering deer and elk.

**Cultural Resources.** A total of 5,848 acres of public land between Colorado Highway 90 and the Big Sandy Wash would undergo a Class III cultural inventory to determine the significance and location of high-value archeological sites. Upon completion of the inventory and data analysis, some of these areas may be assigned a special designation and a management plan would be developed.

**Visual Resources.** The management unit would be managed under VRM Class III guidelines, except for Escalante Canyon which would be managed under VRM Class II guidelines to protect its scenic qualities.

**Acquisition of Non-Federal Lands.** If they are available, non-federal lands that would improve livestock management and increase crucial deer and elk winter range would be acquired through exchange only.

**Acquisition of Access.** Public road access would be acquired into the Olathe Reservoir area for hunting and other recreational purposes. Public trail access would be acquired on the McCarty Trail in lower Escalante Canyon to provide additional access into the Dominquez Canyon WSA.

**Fire Management.** A total of 97,543 acres of public land would be managed under the fire suppression category, with 8,657 acres identified for intensive suppression and 88,886 acres identified for conditional suppression. A total of 89,267 acres would be managed under the fire-use category where fire would be utilized as a management tool. Planned or natural ignitions meeting pre-determined prescriptions would be allowed on these areas.

### MANAGEMENT UNIT D-2

#### *66,110 Acres of Public Surface; 14 percent of the Planning Area*

Management Unit D-2 consists of 66,110 acres of public land located primarily on the southern end of the Uncompahgre Plateau and in the lower elevations of the North Fork Valley. Both of these areas have large wintering deer and elk populations. Approximately half of the management unit is considered crucial deer and elk winter range. A portion of the unit, in the Camel Back/Roubideau Creek area, is suitable habitat for desert bighorn sheep.

The management unit would be managed to improve the areas' capabilities to support wintering deer and elk populations. Land treatment projects and other facilities designed to improve the quality and quantity of winter habitat would be developed. Wildlife would have first priority for all additional forage made available as a result of BLM habitat improvement projects. All other land uses would be permitted if they would not degrade the areas' winter range capabilities. Disturbances would be minimized from December 1 through April 30 on crucial deer and elk winter range (37,007 acres). Habitat in the Camel Back/Roubideau Creek area would be available for possible introduction of desert bighorn sheep.

**Coal.** Federal coal estate would be open to leasing. Within crucial deer and elk winter range, seasonal stipulations on new road and facility construction may be necessary from December 1 through April 30 to reduce stress on wintering deer and elk.

**Oil and Gas.** Federal oil and gas estate would be open to leasing. Within crucial deer and elk winter range, seasonal stipulations on seismic and drilling activities would be in effect from December 1 through April 30 to reduce stress on wintering deer and elk. Variances to this seasonal stipulation may be granted on a case-by-case basis.

## PREFERRED ALTERNATIVE

**Mineral Materials.** Federal mineral estate would be open to disposal of mineral materials. Within crucial deer and elk winter range, seasonal restrictions on disposal activities may be necessary from December 1 through April 30 to reduce stress on wintering deer and elk.

**Soils and Water Resources.** Non-conflicting erosion control objectives, projects, and mitigation measures would be incorporated into new wildlife HMPs. Land treatment and erosion control projects would be permitted if they would be compatible with wildlife habitat management objectives.

**Livestock Grazing.** Livestock grazing would continue at current forage allocation levels and seasons of use unless studies determine adjustments are needed. Livestock would have first priority for all additional forage made available as a result of livestock operator-funded rangeland improvement projects. Non-conflicting livestock management objectives, projects, and mitigating measures would be incorporated into new wildlife HMPs. Facility development and land treatment projects would be permitted if they would be compatible with wildlife habitat management objectives.

**Forestry.** The management unit would be available for woodland product harvests. On 37,007 acres of crucial deer and elk winter range, seasonal restrictions on harvests may be necessary from December 1 through April 30 to reduce stress on wintering deer and elk. Woodland harvests would be designed to increase forage production and would be compatible with wildlife habitat management objectives.

**Off-Road Vehicles.** Vehicle use within the management unit would be limited to designated roads and trails from December 1 through April 30. Variances to this seasonal limitation may be granted if ORV use would not result in any negative impacts on wintering deer and elk.

**Visual Resources.** The management unit would be managed under VRM Class III guidelines.

**Major Utilities.** The management unit would be open to development of major utility facilities. Within crucial deer and elk winter range, construction activities may be restricted from December 1 through April 30 if necessary to reduce stress on wintering deer and elk.

**Acquisition of Non-Federal Lands.** If they are available, non-federal lands that would be necessary for effective management of crucial deer and elk winter range may be acquired through exchange.

**Acquisition of Access.** Public access would be acquired into the McDonald Mesa, Roatcap-Jay Creek, Spaulding Peak/Dry Creek, Oak Mesa, and Oak Ridge areas for hunting and other recreational uses, wildlife habitat management, and timber and woodlands management.

**Fire Management.** A total of 52,292 acres of public surface would be managed under the fire suppression category, with 47,032 acres identified for intensive suppression and 5,260 acres identified for conditional suppression. A total of 13,818 acres would be managed under the fire-use category where fire would be utilized as a management tool. Planned or natural ignitions meeting pre-determined prescriptions would be allowed in these areas.

### MANAGEMENT UNIT D-3

#### *47,607 Acres of Public Surface; 10 percent of the Planning Area*

Management Unit D-3 consists of 47,607 acres of public land located primarily on the northeast-facing slopes of the Uncompahgre Plateau. The management unit contains some of the most productive pinyon-juniper woodland sites in the planning area. They are used extensively for livestock grazing and are valuable deer and elk habitat.

The management unit would be managed for sustained yield production of the woodland resource within the allowable cut restrictions determined by the TPCC inventory (23,206 acres).

**Oil and Gas.** Federal oil and gas estate would be open to leasing. A seasonal stipulation on seismic and drilling activities would be in effect on crucial deer and elk winter range from December 1 through April 30 if necessary to reduce stress on wintering deer and elk. Variances to this seasonal stipulation may be granted on a case-by-case basis.

**Soils and Water Resources.** Non-conflicting erosion control objectives, projects, and mitigating measures would be incorporated into new FMPs. Existing erosion control projects would be maintained and new projects would be developed if they would not decrease the woodland base.

**Wildlife Habitat.** Non-conflicting wildlife habitat management objectives, projects, and mitigating measures would be incorporated into new FMPs. Existing wildlife habitat projects would be maintained and new projects would be developed if they would not decrease the woodland base.

**Livestock Grazing.** Non-conflicting livestock grazing management objectives, projects, and mitigating measures would be incorporated into new FMPs. Existing livestock projects would be maintained and new projects would be developed if they would not decrease the woodland base.

**Off-Road Vehicles.** The management unit would be open to ORV use except in crucial deer and elk winter range (28,552 acres) where vehicle use would be limited to designated roads and trails from December 1 through April 30 if necessary to reduce stress on wintering deer and elk. ORV use for woodland management and harvest purposes would be authorized year-round.

## CHAPTER THREE

**Acquisition of Access.** Public access would be acquired into the Beaver Hill and Linscott Canyon areas for woodland harvest and recreation purposes.

**Fire Management.** A total of 25,162 acres of public land would be managed under the fire suppression category, with 21,187 acres identified for intensive suppression and 3,975 acres identified for conditional suppression. A total of 22,445 acres would be managed under the fire-use category where fire would be utilized as a management tool. Planned or natural ignitions meeting pre-determined prescriptions would be allowed on these areas.

### MANAGEMENT UNIT D-4

#### *40,792 Acres of Public Surface; 8 percent of the Planning Area*

Management Unit D-4 consists of the 40,792 acres of public lands surrounding the Gunnison Gorge. The management unit is characterized by a diversity of landscapes and high-value recreation opportunities. The need to protect both the quality and diversity of recreation opportunities and to facilitate recreation use would be recognized as important during the formulation of management decisions affecting the area.

The management unit would be managed as the Gunnison Gorge Special Recreation Management Area (SRMA). Maps, interpretive materials, and facilities would be developed. Recreation use would be monitored and possibly restricted as necessary to protect natural features and recreation opportunities.

Lands in the Peach Valley area (15,610 acres) would be managed for ORV recreation opportunities. A minimum of restrictions would be placed on surface-disturbing activities and a high concentration of recreation users would be permitted within this area.

Motorized access to the remainder of the management unit (25,182 acres) would be restricted to designated roads, the majority of which are primitive in character. This area would be managed to maintain a predominantly natural environment with low but evident human concentrations and impacts.

**Oil and Gas.** Federal oil and gas estate would be open to leasing. A seasonal stipulation on seismic and drilling activities would be in effect from December 1 through April 30 on 8,077 acres of crucial deer and elk winter range. Variances in this seasonal restriction may be granted if proposed activities are compatible with use of the area as crucial winter range.

**Locatable Minerals.** Federal mineral estate would be open to entry and location. The BLM protective withdrawal (PLO 5261; September 15, 1972) would be revoked and the Bureau of Reclamation withdrawal on Fruitland Mesa

would be recommended for revocation. Revoking these mineral withdrawals would allow for mineral exploration and development, facilitate resource management, and permit long-term land use planning.

**Soils and Water Resources.** The Elephant Skin Wash salinity control project would be maintained to reduce saline runoff. Elephant Skin Wash would be protected from surface-disturbing activities.

**Wildlife Habitat.** Bighorn sheep habitat in the Smith Fork Canyon (2,250 acres) would be monitored and protected. Activities and land uses that are consistent with maintaining the necessary forage and isolated habitat requirements of bighorn sheep would be permitted.

**Livestock Grazing.** Livestock grazing would continue at current forage allocation levels and seasons of use unless studies indicate that adjustments are needed. The 140-acre Gunnison Forks habitat management area would remain unallotted for livestock grazing. Livestock forage utilization would be limited to 35 percent in the Elephant Skin Wash area (2,370 acres) as necessary to protect soils by maintaining an optimum basal ground cover.

**Forestry.** A 1,255-acre portion of the 2,500 acres of harvestable woodlands within the management unit would be available for management and harvest. These available woodlands are located on Black Ridge. This area would be closed to harvest from December 1 through April 30 to protect crucial deer and elk winter range. The remaining harvestable woodlands (1,245 acres) would be managed for scenic and relic-area values and would not be harvested.

**Off-Road Vehicles.** Vehicle use would be allowed on 15,610 acres in the Peach Valley area that are suitable and utilized for ORV recreation. Vehicle use in the Elephant Skin Wash and the remainder of the management unit would be limited to designated roads and trails to protect natural and scenic values.

**Visual Resources.** The 15,610 acres open to ORV use would be managed under VRM Class IV guidelines.

**Major Utilities.** A total of 2,462 acres in the Smiths Mountain and Gunnison Forks areas would be open to but not preferred for development of new major utility facilities. These lands could be utilized for major utility development if there are no feasible alternatives. The remainder of the management unit would be closed to new major utility development to protect natural and scenic values.

**Acquisition of Non-Federal Lands.** Actions would be initiated to acquire 2,200 acres of non-federal lands that would be necessary to facilitate public access and enhance recreational values.

**PREFERRED ALTERNATIVE**

Table 3-7

**OBJECTIVES FOR PERCENT GROUND COVER WITHIN MANAGEMENT UNIT D-5**

<b>RANGE SITE</b>	<b>LOCATION</b>	<b>PERCENT BASAL GROUND COVER</b>
Stony salt desert	North of Delta	10
Clayey salt desert	South of Hotchkiss	10
Salt flats	South of Hotchkiss	7
Clayey salt desert	Bone Mesa	10

**Acquisition of Access.** Public access would be acquired along the Gunnison Gorge rim southwest of the Gunnison Forks and from Colorado Highway 92 to the Gunnison River in the Austin area for recreation purposes.

**Fire Management.** A total of 26,070 acres of public land would be managed under the fire suppression category and identified as conditional suppression areas. A total of 14,722 acres would be managed under the fire-use category where fire would be utilized as a management tool. Planned or natural ignitions meeting pre-determined prescriptions would be allowed on these areas.

**MANAGEMENT UNIT D-5**

**30,720 Acres of Public Surface; 6 percent of the Planning Area**

Management Unit D-5, totalling 30,720 acres, consists of Mancos shale hills commonly known as the "adobe badlands". These highly erodible soils, combined with a lack of protective vegetation, can produce sediment loads in local watersheds that are high in salinity. High precipitation runoff rates from the adobes contribute to overall salinity levels in the Upper Colorado River Basin. Salinity yields are increased within localized areas due to increased erosion from surface-disturbing activities including ORV use and livestock grazing.

The management unit would be managed to reduce salinity loads in the Upper Colorado River Basin. In-channel structures and land treatment projects designed to reduce runoff, erosion, and sedimentation would be developed, and surface protection measures would be implemented. Forage utilization would be managed to achieve the basal ground cover objectives identified in Table 3-7. Surface-disturbing activities would be curtailed from March 1 through May 31 when saturated soils are most vulnerable to damage. Activities and other land uses which are consistent with maintaining the soil and vegetative conditions necessary to reduce erosion and salt contributions to the river basin would be permitted.

Activities and land uses that are consistent with maintaining the scenic values of the Adobe Badlands WSA portion of the unit (8,358 acres) would be permitted. Salinity control measures in this area would not utilize structures or land treatments that would alter scenic values.

**Oil and Gas.** Federal oil and gas estate would be open to leasing. A seasonal stipulation on seismic and drilling activities on public surface would be in effect from March 1 through May 31 to protect erodible and saline soils. Variances to this seasonal stipulation may be granted if soils would not be susceptible to damage.

**Mineral Materials.** Federal mineral estate would be open to mineral material activities except from March 1 through May 31 if necessary to protect wet soils.

**Livestock Grazing.** Livestock grazing would be allowed except from March 20 to range readiness to protect plant species during the spring growth period, and to prevent soil disturbance when saturated soils are most vulnerable to damage. If the basal ground cover is less than the objectives identified in Table 3-7, livestock forage utilization would be managed at 35 percent of key forage species to increase basal ground cover.

**Off-Road Vehicles.** A total of 8,358 acres within the Adobe Badlands WSA would be closed to ORV use to protect scenic values and prevent disturbance of highly saline soils. Vehicle use on the remaining 22,362 acres in the management unit would be limited to designated roads and trails to protect highly saline soils.

**Major Utilities.** The management unit would be open to development of major utility facilities but no surface-disturbing activities would be permitted from March 1 through May 31 if necessary to protect wet soils.

**Fire Management.** A total of 29,535 acres of public land would be managed under the fire suppression category and identified as conditional suppression areas. A total of 1,185 acres would be managed under the fire-use category where fire would be utilized as a management tool. Planned or natural ignitions meeting pre-determined prescriptions would be allowed on these areas.

**MANAGEMENT UNIT D-6**

**21,038 Acres of Public Surface; 4 percent of the Planning Area**

Management Unit D-6 is the Gunnison Gorge WSA (CO-030-388). The WSA, totalling 21,038 acres, would be recommended as preliminarily suitable for wilderness

## CHAPTER THREE

designation. Until a final decision on wilderness designation or non-designation is made, the Gunnison Gorge WSA would be managed according to the Wilderness Interim Management Policy and the Gunnison Gorge Recreation Area Management Plan (RAMP).

During the wilderness intensive inventory, the Gunnison Gorge was determined to meet the wilderness size requirement of at least 5,000 acres, to be natural, and to provide outstanding opportunities for solitude and primitive/unconfined recreation. This area has received considerable notoriety as a scenic and wilderness canyon complex. If designated as wilderness by Congress, activities and land uses that are consistent with preserving the natural condition and wilderness character of the area would be permitted.

**Air Quality.** The management unit would be managed within federal air quality Class II guidelines unless the State of Colorado reclassifies the area, or other areas, as a result of procedures prescribed in the Clean Air Act as amended in 1977. Under other state authorities, the Gunnison Gorge WSA is currently managed as a Category I area where more restrictive sulfur dioxide requirements apply.

**Oil and Gas.** Federal oil and gas estate would be closed to future leasing. There are no pre-FLPMA leases in the WSA. Development of any post-FLPMA leases would be permitted only if activities would result in no impairment of wilderness characteristics.

**Locatable Minerals.** The management unit would be closed to mineral entry and location except for pre-FLPMA claims determined to have valid discoveries. The majority of the area (74 percent) is presently withdrawn from mineral entry.

**Mineral Materials.** The management unit would be closed to disposal of mineral materials.

**Soils and Water Resources.** Where natural recovery is unlikely, deteriorated watershed conditions would be restored if life, property, or wilderness values are threatened, or if serious depreciation of important environmental qualities outside the wilderness area is evident. Revegetation efforts would be limited to use of native or naturalized species. Whenever feasible, non-motorized access and project development methods would be required. Approval of the BLM Director would be required for all watershed restoration projects.

**Threatened and Endangered Species.** Threatened and endangered species research and habitat improvement would be permitted if activities are consistent with protection of wilderness values. Habitat would be managed for federally-listed bald eagles and peregrine falcons and state-listed river otters. Recreation use would be restricted if necessary for the protection of threatened and endangered species.

**Wildlife Habitat.** Wildlife habitat would be managed to allow for natural distribution, numbers, and interaction of indigenous wildlife and fish species. Developed facilities, if necessary for the continued existence or welfare of a wildlife species, would be permissible if wilderness characteristics would not be impaired. Bighorn sheep habitat and deer and elk winter range would be managed in cooperation with the Colorado DOW. Supplemental releases of bighorn sheep would be permitted as identified in the reintroduction plan of 1986 or its future amendments.

**Livestock Grazing.** Livestock grazing and facility maintenance would be managed at levels and conditions established prior to wilderness designation. New rangeland improvements would be permissible if determined to be necessary for rangeland and/or wilderness protection.

**Forestry.** Woodland harvest and/or management would be permitted only for control of insects and disease if determined necessary to protect resources outside the management unit. There is a total of 337 acres of productive woodlands within the WSA that would be unavailable for management and harvest.

**Recreation.** Recreation use would be regulated as necessary to protect wilderness values. Highest priority would be given to low-impact recreation activities that could not be accommodated outside the wilderness environment. Opportunities for non-motorized recreation in a predominantly natural environment would be maintained. Facilities, improvements, and signs would be limited to those necessary to protect wilderness resources along with public health and safety. Permits would be required for all commercial recreation uses and, if necessary to protect wilderness values, for all non-commercial recreationists. Hunting, fishing, and recreational trapping would be permitted.

The river corridor would be managed to maintain very low human group concentrations and little overall evidence of human use. River-boating use would be limited to six to ten group encounters per day with no more than two overnight commercially-outfitted trips allowed on the same day. Allocations between private and commercial river-boating use would be made if necessary to protect wilderness values or to emphasize opportunities for specific recreational experiences such as self-reliance as opposed to guided and outfitted experiences.

**Off-Road Vehicles.** Vehicle use in general would be eliminated from the management unit. Vehicle use would be permitted in certain circumstances involving valid existing rights, livestock grazing, fire suppression, life-threatening emergencies, and wilderness area administration. The rugged canyon area has few vehicular access routes.

**Cultural and Paleontological Resources.** In most instances, cultural and paleontological resources would be subject to the forces of nature in the same manner as other

## PREFERRED ALTERNATIVE

wilderness resources. Study or management would not entail excavation, stabilization, or interpretation. Exceptions may be granted by the BLM State Director for unusually significant cultural or paleontological resources.

**Visual Resources.** The management unit would be managed under VRM Class I guidelines.

**Major Utilities.** The management unit would be closed to development of utility facilities. The area is not within the lands identified as needed for future major utility development in the 1980 Western Regional Utility Corridor Study.

**Hydroelectric Development.** Unless authorized by Congress or the President, no hydroelectric or water storage development would be permitted within the management unit. The BLM would recommend revocation of all Bureau of Reclamation (BOR) and Federal Energy Regulatory Commission (FERC) powersite withdrawals located within the WSA.

**Acquisition of Access.** Public access to the WSA boundary in the Red Canyon area would be identified for acquisition.

**Agricultural Development.** No agricultural or related development would be permitted within the management unit. The BLM would recommend revocation of the portion of the Fruitland Mesa withdrawal (BOR) that is within the WSA.

**Fire Management.** A total of 21,038 acres would be managed under the fire-use category where fire would be utilized as a management tool. Only natural ignitions meeting pre-determined prescriptions would be allowed in this area.

### MANAGEMENT UNIT D-7

#### *17,232 Acres of Public Surface; 4 percent of the Planning Area*

Management Unit D-7 consists of 50,854 acres of federal coal estate within the planning area and 1,756 acres of federal coal estate outside of the planning area. A 17,232-acre portion of this federal coal estate underlies federal surface estate.

The management unit would be managed for both existing and potential coal development. Development of existing coal leases would continue, and unleased federal coal would be identified as acceptable for further coal leasing consideration with a minimum of multiple-use restrictions. Activities and land uses that are consistent with maintaining existing coal operations and the potential for coal development would be permitted.

**Oil and Gas.** Federal oil and gas estate would be open to leasing. A seasonal stipulation on seismic and drilling activities would be in effect from December 1 through April

30 on 1,730 acres of crucial deer and elk winter range and 1,637 acres of habitat used for hunting by bald eagles. Variances in these seasonal stipulations may be granted if proposed activities are compatible with use of the areas as crucial winter range or bald eagle winter hunting habitat.

**Riparian/Aquatic Systems.** Riparian/aquatic zones up to one-quarter mile wide would be protected. Activities that disturb these areas could be approved on a site-specific basis after consultation with affected entities and development of mitigating measures.

**Wildlife Habitat.** Wildlife would have priority for forage allocations on crucial deer and elk winter range (1,730 acres).

**Forestry.** All commercial forest lands and pinyon-juniper woodlands that are suitable for harvest would be managed for sustained yield production within allowable cut restrictions determined by the TPCC inventory.

**Off-Road Vehicles.** Vehicle use in the riparian zones associated with Bear and Roatcap creeks would be limited to designated roads and trails yearlong. Vehicle use in crucial deer and elk winter range (1,730 acres) would be limited to designated roads and trails from December 1 through April 30. This seasonal ORV designation would be subject to change on a site-specific basis if mild winter conditions eliminate the need for protection of a crucial winter range.

**Major Utilities.** Corridors one-quarter mile wide and located on each side of Colorado Highway 133 would be open to development of major utility facilities. The remainder of the area would be closed to major utility facilities except for those needed for coal development. Within the management unit, 83 percent of the public lands that are identified as needed for future major utility development would be closed to this type of development. This management would greatly reduce the long-term conflicts between new utility facilities and the potential surface effects of coal mine subsidence.

**Acquisition of Non-Federal Lands.** If they are available, non-federal lands that would be necessary for effective management of riparian zones along with crucial deer and elk winter range would be acquired through exchange only.

**Fire Management.** A total of 14,910 acres of public land would be managed under the fire suppression category and identified as intensive suppression areas. A total of 2,322 acres would be managed under the fire-use category where fire would be utilized as a management tool. Planned or natural ignitions meeting pre-determined prescriptions would be allowed on this area.

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### MANAGEMENT UNIT D-8

#### *8,942 Acres of Public Surface; 2 percent of the Planning Area*

Management Unit D-8 is 8,942 acres of public land northeast of Delta that consists of Mancos shale (adobe badlands) hills with little vegetative cover. The area is suitable and utilized for ORV recreation. ORV activities typically involve local residents and occur during the spring, fall, and winter.

The management unit would be managed as open to ORV use. Recreational and competitive ORV use and a high concentration of recreation users would be permitted within the management unit. Facilities such as informational signs and motorcycle loading ramps could be developed if constructed and maintained to BLM standards by local ORV organizations. A minimum of restrictions would be placed on surface-disturbing activities that do not impede or endanger ORV recreationists.

**Livestock Grazing.** Grazing use would continue in the management unit but construction of facilities, such as fences, that create safety hazards or impede free vehicle use would not be permitted.

**Visual Resources.** The management unit would be managed under VRM Class IV guidelines.

**Major Utilities.** The management unit would be open to development of major utility facilities.

**Fire Management.** A total of 8,942 acres of public land would be managed under the fire suppression category and identified as conditional suppression areas.

### MANAGEMENT UNIT D-9

#### *6,320 Acres of Public Surface; 1 percent of the Planning Area*

The public land riparian zones that comprise Management Unit D-9 occur throughout the planning area and are generally associated with perennial or intermittent streams. These areas (6,320 acres) have a very high productive capability and are very important in maintaining the water quality of the adjacent streams.

The management unit would be managed to restore and enhance riparian vegetation along 40 miles of streams. Objectives and projects designed to accelerate improvement of species diversity, streambank cover and stability, and instream structure, and to raise the water table would be incorporated into existing activity plans or developed in new riparian/aquatic system management plans. All areas would be intensively monitored for vegetation, aquatic habitat, and erosion conditions.

**Coal.** If disturbance of the riparian/aquatic system is unavoidable, coal development would be considered on a site-specific basis after consultation with affected entities and formulation of mitigating measures.

**Mineral Materials.** Federal mineral estate would be closed to disposal of mineral materials except for sales which would result in negligible or no impacts to the riparian and aquatic systems.

**Soils and Water Resources.** Non-conflicting erosion control and water quality improvement objectives and projects would be incorporated into new riparian/aquatic system management plans.

**Wildlife Habitat.** Non-conflicting wildlife habitat management objectives, projects, and mitigating measures would be incorporated into new riparian/aquatic system management plans.

**Livestock Grazing.** Livestock use would be permitted in riparian zones except from March 1 through May 15 when it would be eliminated to accelerate improvement of riparian vegetation. Livestock use would be limited to 35 percent utilization by weight of key forage species. Trailing use would be limited as much as possible and confined to established roads. Livestock that are being trailed would not be permitted to bed in riparian zones unless absolutely necessary.

**Forestry.** Woodland product harvests would not be permitted in the management unit.

**Off-Road Vehicles.** Vehicle use within the management unit would be limited to designated roads and trails.

**Major Utilities.** The management unit would be open to development of major utility facilities. Surface-disturbing activities which would have long-term adverse effects on riparian/aquatic systems would be prohibited.

**Acquisition of Non-Federal Lands.** If they are available, non-federal lands that would be necessary for effective management of riparian/aquatic systems would be acquired through exchange only.

**Acquisition of Access.** Public access would be acquired into the Terror Creek area for project development and recreation purposes. The Potter Creek road (five miles) and the Dry Fork of Escalante Creek road (two miles) would be closed and rehabilitated and removed from the transportation plan.

**Fire Management.** A total of 3,082 acres of public land would be managed under the fire suppression category, with 1,607 acres identified for intensive suppression and 1,475 acres identified for conditional suppression. A total of 3,238 acres would be managed under the fire-use category where fire would be utilized as a management tool. Planned or natural ignitions meeting pre-determined prescriptions would be allowed on these areas.

## PREFERRED ALTERNATIVE

### MANAGEMENT UNIT D-10

#### *3,292 Acres of Public Surface; less than 1 percent of the Planning Area*

Management Unit D-10 consists of two tracts in the High Park/Storm King Peak area 20 miles southeast of Montrose. The management unit (3,292 acres of public land) ranges from 8,500 feet to over 10,000 feet in elevation, and is used extensively as an elk calving area in the spring. The largest commercial timber stands in the planning area exist in this unit. A portion of the unit has been proposed for development of a commercial ski area and other recreational facilities.

The management unit would be managed to enhance its use as an elk calving area. Any disturbance during the calving season (May 1 through June 15) would be limited as much as possible. Habitat in elk calving areas would be improved, and wildlife would have first priority for allocation of new forage.

**Oil and Gas.** Federal oil and gas estate would be open to leasing with a seasonal stipulation on seismic and drilling activities in effect from May 1 through June 15 to prevent disturbance of calving elk.

**Soils and Water Resources.** Stipulations designed to maintain soil stability and prevent soil slumping would be incorporated into plans for all surface-disturbing land use activities.

**Forestry.** Skid trails and other roads would be closed and rehabilitated; main haul roads would remain available for public use.

**Recreation.** For five years after issuance of the RMP Record of Decision, the BLM would manage activities within the Storm King tract, excluding prior existing rights provided by coal leases and land use authorizations, to be compatible with potential use of the area for commercial downhill ski area development. At termination of this five-year period, if no substantive development plans have been received by the Montrose District of the BLM, resource management actions could be permitted that would conflict with possible ski area development.

Substantive development plans must describe construction, operation, and maintenance of the entire project, and address the feasibility of mitigating local soil mass-wasting problems, elk calving disturbance, and potential impacts on surface facilities from subsidence due to coal mining. The development plan must be submitted for approval through the Colorado Joint Review Process and must be in sufficient detail to allow complete analysis of both socioeconomic and environmental impacts.

**Off-Road Vehicles.** The management unit would be open to ORV use except during the elk calving season when all roads would be closed. Access for maintenance of the existing communications site would be permitted at all times.

**Major Utilities.** Public lands would be open to development of major utility facilities but no surface-disturbing activities would be permitted during the elk calving season.

**Acquisition of Non-Federal Lands.** If they are available, non-federal lands that would expand elk calving areas and improve recreational opportunities would be acquired through exchange only.

**Acquisition of Access.** Public access would be acquired into the Storm King and High Park areas for timber harvest and recreation purposes.

**Fire Management.** A total of 3,292 acres of public land would be managed under the fire suppression category and identified as intensive suppression areas.

### MANAGEMENT UNIT D-11

#### *1,990 Acres of Public Surface; less than 1 percent of the Planning Area*

Management Unit D-11 is comprised of 1,990 acres of public land adjacent to the Gunnison River west of Delta. It adjoins the Escalante State Wildlife Area which is administered by the Colorado DOW. The management unit presently receives considerable use by waterfowl as nesting and resting habitat. Additional management and minor developments could enhance its potential for increased use as waterfowl habitat.

The management unit would be managed as waterfowl habitat. Adequate cover, wetlands, and nesting structures would be provided. Disturbance would be minimized during the breeding and nesting season (March 15 through June 30). Activities and land uses that are consistent with maintaining waterfowl habitat characteristics would be permitted. The BLM would coordinate management of the area with the DOW.

**Oil and Gas.** Federal oil and gas estate would be open to leasing with seasonal stipulations on seismic and drilling activities in effect from March 15 through June 30 to protect waterfowl habitat, and from December 1 through April 30 on habitat used for hunting by bald eagles.

**Locatable Minerals.** The withdrawal in Dominguez Canyon would be recommended for revocation to allow mineral exploration and development, facilitate resource management, and permit long-term planning. Federal mineral estate would be opened to entry and location.

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**Mineral Materials.** Federal mineral estate would be open to disposal of mineral materials except during the waterfowl nesting season.

**Acquisition of Non-Federal Lands.** If they are available, non-federal lands that would be necessary to increase waterfowl habitat and facilitate development and management of the area would be acquired through exchange only.

**Fire Management.** The entire management unit (1,990 acres) would be managed under the fire suppression category and identified as conditional suppression areas.

### MANAGEMENT UNIT D-12

#### *1,895 Acres of Public Surface; less than 1 percent of the Planning Area*

Management Unit D-12 is 1,895 acres of public land in Escalante Canyon approximately six miles southwest of the Gunnison River. Several listed plant species and two unique plant associations occur in the management unit. The area also receives significant recreational use due to its scenic qualities and the presence of eroded potholes in Escalante Creek.

The management unit would be designated as the Escalante Canyon Area of Critical Environmental Concern (ACEC). This designation would enhance management and protection of the listed plant species and unique plant associations, and would improve the public's awareness of the recreational hazards of the Escalante Potholes. Plant monitoring studies would be developed and activities designed to improve these plants' habitat conditions would be initiated. Surface-disturbing activities would be restricted. Informational signs identifying potential recreational hazards would be provided. Camping would be limited to designated areas.

**Mineral Materials.** Federal mineral estate would be closed to disposal of mineral materials to protect the potential habitats of listed species and unique plant associations.

**Forestry.** Woodland harvests would not be permitted to prevent accidental destruction of listed species and unique plant associations.

**Off-Road Vehicles.** Vehicle use within the management unit would be limited to designated roads and trails to prevent accidental destruction of listed species and unique plant associations.

**Visual Resources.** The management unit would be managed under VRM Class II guidelines to maintain its scenic qualities.

**Major Utilities.** The management unit would be closed to development of major utilities to prevent accidental destruction of listed species and unique plant associations, and to maintain its scenic qualities.

**Fire Management.** All 1,895 acres of public surface in the management unit would be managed under the fire-use category where fire would be utilized as a management tool. Planned or natural ignitions meeting pre-determined prescriptions would be allowed.

### MANAGEMENT UNIT D-13

#### *377 Acres of Public Surface; less than 1 percent of the Planning Area*

Management Unit D-13 consists of two tracts totalling 377 acres of public land eight miles east of Montrose. The smaller tract is north of Highway 50 and the larger tract is south of the highway. The tracts contain the largest population of the endangered clay-loving wild buckwheat in the planning area and also have significant populations of Montrose penstemon, a candidate species.

The management unit would be designated as the Fairview Research Natural Area (RNA), an area of critical environmental concern. Plant monitoring studies would be developed in cooperation with the Colorado Natural Areas Program and actions designed to improve habitat conditions would be initiated. Surface-disturbing activities would be restricted to protect the threatened and endangered species and their potential habitat.

**Mineral Materials.** Federal mineral estate would be closed to disposal of mineral materials to prevent accidental destruction of threatened or endangered plant species or their potential habitat.

**Livestock Grazing.** Livestock grazing would continue at current levels unless studies determine threatened and endangered plant species or their potential habitat are being degraded.

**Off-Road Vehicles.** The management unit would be closed to ORV use to prevent accidental destruction of threatened or endangered plant species or their potential habitat.

**Major Utilities.** The management unit would be open to development of major utility facilities, except pipelines, so long as there would be no disturbance of threatened or endangered plant species or their potential habitat.

**Fire Management.** The management unit (377 acres) would be managed under the fire suppression category and identified for conditional suppression.

## COMPARISON OF ALTERNATIVES

### MANAGEMENT UNIT D-14

#### *80 Acres of Public Surface; less than 1 percent of the Planning Area*

Management Unit D-14 is an 80-acre site consisting mainly of a volcanic structure with high-value scientific, interpretive, and scenic characteristics. A shelter facility and interpretive nature trail have been developed in the area. Needle Rock is part of the Colorado Natural Areas Program and is one of the significant public land geologic features in Colorado as identified by the BLM's Geologic Advisory Group.

The management unit would be designated as the Needle Rock Outstanding Natural Area (ONA) and an Area of Critical Environmental Concern (ACEC). This designation would preclude all surface-disturbing activities that are not consistent with management of the area for natural, scenic, and educational values. The area would be managed to protect these values and for recreation opportunities (sightseeing, picnicking, and geologic study) in a roaded but natural environment. A management plan would be developed following designation.

**Oil and Gas.** Federal oil and gas estate would remain open to leasing with a no surface occupancy stipulation.

**Locatable Minerals.** Federal mineral estate would remain withdrawn from entry and location.

**Mineral Materials.** Federal mineral estate would be closed to disposal of mineral materials.

**Livestock Grazing.** The management unit would remain unallotted for livestock grazing use.

**Off-Road Vehicles.** Vehicle use within the management unit would be limited to designated roads and trails.

**Visual Resources.** The management unit would be managed under VRM Class I guidelines.

**Major Utilities.** The management unit would be closed to development of major utility facilities.

**Fire Management.** The entire management unit would be managed under the fire suppression category and identified as an intensive suppression area.

### MANAGEMENT UNIT D-15

#### *49,872 Acres of Public Surface; 10 percent of the Planning Area*

In general, the public lands in Management Unit D-15 (49,872 acres) would be managed according to the policy assumptions and standard resource program management guidance developed for the Preferred Alternative. No single resource or resource use would have management priority. No activity plans would be written and no major BLM-

funded projects or facilities would be developed within this area. Habitat, vegetation, and other resource studies would be minimal. Specific resource management in this area would be prescribed as follows.

**Oil and Gas.** Federal oil and gas estate would be open to leasing. A seasonal stipulation on seismic and drilling activities would be in effect from December 1 through April 30 on 1,042 acres along the Gunnison and North Fork of the Gunnison rivers that are used by bald eagles as hunting habitat.

**Locatable Minerals.** The withdrawals on Fruitland Mesa and in Dominguez Canyon would be recommended for revocation to allow for mineral exploration and development, facilitate resource management, permit long-term land use planning, and allow for disposal of 2,034 acres of public land on Fruitland Mesa. Withdrawals on all other lands identified for disposal would be recommended for revocation. Portions of withdrawals in the management unit would be affected, including those associated with 108 acres of the Paonia Project, 37 acres of the Gunnison/Arkansas Project, and 72 acres of the Uncompahgre Valley Project, as well as 125 acres at Fruitgrowers' Reservoir, 123 acres at Crawford Reservoir, and 25 acres along the East Canal. Federal mineral estate would be open to entry and location after a withdrawal is revoked.

**Forestry.** The reserved federal timber (123 acres) on 160 acres of land deeded to the Girl Scouts of America would be removed from the timber base and not considered for harvest. The management and harvest of this timber would be inconsistent with use of the land as a Girl Scout camp.

**Off-Road Vehicles.** Public lands within the management unit would be open to ORV use.

**Fire Management.** A total of 49,872 acres of public land would be managed under the fire suppression category, with 13,487 acres identified for intensive suppression and 36,385 acres identified for conditional suppression.

## COMPARISON OF ALTERNATIVES

Table 3-8 is a composite summary of the data presented in the management prescriptions of each alternative. It summarizes the major land use allocations that would be made under each management alternative by resource. The purpose of this comparison is to point out major differences between the alternatives and provide a clearer basis for management recommendations.

Table 3-8

COMPARISON OF THE RESOURCE MANAGEMENT ALTERNATIVES

RESOURCE/ RESOURCE USE	GENERAL GUIDANCE	MANAGEMENT UNDER EACH ALTERNATIVE			
		Continuation of Current Management Alternative	Production Alternative	Conservation Alternative	Preferred Alternative
COAL	Allow coal development on all areas not excluded from leasing. Consider coal leasing on a demand basis; apply unsuitability criteria and resource screening.	Continue with 26 existing coal leases on 26,663 acres and identify 20,737 acres of federal coal estate in the Paonia/Somerset and Cimarron Ridge coal areas as acceptable for further leasing for maintenance and emergency purposes.	Continue with 26 existing coal leases on 26,663 acres and identify 83,334 acres of federal coal estate in the Paonia/Somerset, Cimarron Ridge, and Bookcliffs coal areas as acceptable for further coal leasing with limited stipulations	Continue with 26 existing coal leases on 26,663 acres and identify 82,827 acres of federal coal estate in the Paonia/Somerset, Cimarron Ridge, and Bookcliffs coal areas as acceptable for further coal leasing. A no surface disturbance restriction would apply on 6,288 acres of public land and restrictions on surface disturbance and on subsidence activities would apply on another 1,525 acres	Continue with 26 existing coal leases on 26,663 acres and identify 83,334 acres of federal coal estate in the Paonia/Somerset, Cimarron Ridge, and Bookcliffs coal areas as acceptable for further coal leasing with limited stipulations
OIL, GAS, AND GEOTHERMAL RESOURCES	Allow development of oil, gas, and geothermal resources on all areas not excluded from leasing.	Allow leasing of oil, gas, and geothermal resources on 445,364 acres with standard lease terms; on 31,200 acres on a case-by-case basis; on 220 acres with a no surface occupancy stipulation; and on 229,950 acres with seasonal stipulations.	Allow leasing of oil, gas, and geothermal resources on 706,654 acres with standard lease terms. The Needle Rock ONA (80 acres) would be managed with a no surface occupancy stipulation.	Allow leasing of oil, gas, and geothermal resources on 367,488 acres with standard lease terms; on 29,915 acres with a no surface occupancy stipulation; and on 267,466 acres with seasonal stipulations. Three areas recommended as wilderness (41,865 acres) would be closed to leasing.	Allow leasing of oil, gas, and geothermal resources on 511,074 acres with standard lease terms; on 80 acres with a no surface occupancy stipulation; and on 174,542 acres with seasonal stipulations. The Gunnison Gorge WSA (21,038 acres), recommended as wilderness, would be closed to leasing.
LOCATABLE MINERALS	Allow development of locatable minerals on all areas not closed to mineral entry and location.	Allow mineral entry and location on 615,892 acres. Current withdrawals totaling 59,250 acres are closed to entry and location.	Recommend revocation of all withdrawals on public lands (59,250 acres) and allow entry and location on the entire federal mineral estate (675,142 acres).	Recommend retention of all existing withdrawals (59,250 acres); withdraw an additional 39,602 acres from entry; allow entry and location on the remaining federal mineral estate (576,290 acres).	Recommend retention of all existing withdrawals on 9,360 acres; close the Gunnison Gorge WSA the Needle Rock ONA mineral entry and location (21,118 acres); allow entry and location on the remaining federal mineral estate (644,664 acres).
MINERAL MATERIALS	Allow disposal of mineral materials on all areas not excluded or withdrawn.	Allow disposal of mineral materials on all public lands with federal mineral estate (480,805 acres). Disposal of mineral materials on 59,250 of these acres currently under withdrawal would require the approval of the withdrawing agency. Disposal of mineral materials would not be permitted on 220 acres.	Allow disposal of mineral materials on 480,945 acres with federal mineral estate. The Needle Rock ONA (80 acres) would be closed to disposal of mineral materials.	Allow disposal of mineral materials on 396,264 acres with federal mineral estate. Disposal on 196,700 of these acres would be subject to seasonal restrictions. Disposal on 98,852 of these acres would require the approval of the withdrawing agency. Disposal would not be permitted on 84,761 acres.	Allow disposal of mineral materials on 451,315 acres with federal mineral estate. Disposal on 96,833 of these acres would be subject to seasonal or no surface disturbance restrictions. Disposal on 9,360 of these acres would require the approval of the withdrawing agency. Disposal would not be permitted on 29,710 acres.
SOILS AND WATER RESOURCES	Establish water quality studies throughout the planning area.	Continue intensive management and development of the Elephant Skin Wash watershed (2,370 acres) to control salinity.	No public lands would be intensively managed for salinity and/or erosion control.	Public lands totalling 21,615 acres would be intensively managed to control erosion and 26,580 acres would be intensively managed to control salinity. Projects and special protective measures would be developed.	Public lands totalling 33,090 acres, including the Elephant Skin Wash project, would be intensively managed to reduce salinity loads in the upper Colorado River. Appropriate projects and special protective measures would be developed.

COMPARISON OF ALTERNATIVES

Table 3-8 (continued)

SOURCE/ SOURCE	GENERAL GUIDANCE	MANAGEMENT UNDER EACH ALTERNATIVE			
		Continuation of Current Management Alternative	Production Alternative	Conservation Alternative	Preferred Alternative
S AND ER URCES (nued)		Require mitigation to minimize erosion and water quality deterioration in plans for surface disturbing activities. Maintenance of existing projects would have priority over implementation of new projects.	Projects would be developed to control salinity on 7,810 acres if compatible with livestock grazing use. Projects would be developed to reduce runoff, erosion, and sediment on 27,430 acres if compatible with livestock grazing use, crucial deer and elk winter range, and forest management.	Projects would be developed to control salinity on 29,978 acres and erosion on 21,703 acres if compatible with recreation, T&E species, and cultural resource management.	Projects would be developed to reduce runoff, erosion, and sediment on 47,260 acres if compatible with livestock grazing use, forest management, deer and elk winter range, and riparian habitat management.
RIAN ES	Continue to inventory and monitor riparian areas.	Improve the vegetation condition on 3,500 acres of riparian zones through decreased livestock utilization and trampling. Maintain riparian zones in the remainder of the planning area in their present condition.	Maintain riparian zones in the planning area in their present condition so long as it does not interfere with other resource uses and needs.	Improve the vegetation condition on 6,385 acres of riparian zones by implementing special protective and restorative measures. Maintain riparian zones in the remainder of the planning area in their present condition.	Improve the vegetation condition on 6,320 acres of riparian zones by implementing special protective and restorative measures. Maintain or improve riparian zones in the remainder of the planning area.
THREATENED DANGERED ES	Continue to inventory and monitor T&E plant and animal habitats. Continue T&E clearances and Section 7 consultations with the USFWS.	Require measures to protect T&E species, individuals, and habitats in plans for all surface disturbing activities.  Maintain suitable habitat for bald eagles and river otters in the Gunnison Gorge area.	Require minimal measures to protect T&E species, individuals, and habitats in plans for all surface disturbing activities.	Require additional measures beyond minimal requirements to protect T&E species, individuals, and habitats in plans for all surface disturbing activities.  Designate one ACEC and one RNA, totalling 2,272 acres, for protection of T&E plants and unique plant associations.	Require measures to protect T&E species, individuals, and habitats in plans for all surface disturbing activities.  Maintain suitable habitat for bald eagles, peregrine falcons, and river otters in the Gunnison Gorge area.  Designate one ACEC and one RNA (an area of critical environmental concern), totalling 2,272 acres, for protection of T&E plants, unique plant associations, and identification of recreational hazards.
WILDLIFE HABITAT	Monitoring of both terrestrial and aquatic wildlife habitat would continue.  In-channel structures and improvements to benefit aquatic wildlife habitat would be implemented.	Maintain big game forage allocations at present levels; future increases/decreases would be divided evenly between big game and livestock.	Maintain big game forage allocations at present levels; no future additional forage would be allocated to big game.	Maintain big game forage allocations at present levels; all future additional forage would be allocated to big game.	Maintain big game forage allocations at present levels. Big game would have priority for future additional forage on 89,098 acres; future additional forage on another 207,169 acres would be divided evenly between big game and livestock.

CHAPTER THREE

Table 3-8 (continued)

RESOURCE/ RESOURCE USE	GENERAL GUIDANCE	MANAGEMENT UNDER EACH ALTERNATIVE			
		Continuation of Current Management Alternative	Production Alternative	Conservation Alternative	Preferred Alternative
WILDLIFE HABITAT (continued)		Protect and mitigate wildlife habitat and improve browse condition on crucial deer and elk ranges.	Non-conflicting wildlife habitat management objectives and projects would be incorporated into future livestock grazing and forest management plans. Existing wildlife projects would be maintained so long as the timber and woodland base on 27,522 acres would not be decreased.	Intensively manage habitat and minimize disturbance on all crucial deer and elk winter ranges, elk calving areas (High Park), antelope ranges (Wells Gulch/Cactus Park), sage grouse habitats (Fruitland and Simms mesas), in several proposed waterfowl areas, and aquatic wildlife habitat in seven drainages. No vegetation manipulation would be permitted on 2,738 acres of cultural resource sites.	Intensively manage habitat and minimize disturbance on 66,110 acres of crucial deer and elk winter range. Intensively manage and protect 3,200 acres in the Storm King Peak area for elk calving habitat.
		Continue cooperative management effort with the DOW to benefit deer and elk in the Billy Creek area.		Continue cooperative management effort with the DOW to benefit deer and elk in the Billy Creek area.	
		Manage habitat in the Gunnison Gorge for 150 bighorn sheep.	Manage habitat in the Gunnison Gorge for 150 bighorn sheep. Allow reintroduction of bighorn sheep into the Camel Back area so long as livestock forage needs are not impacted.	Allocate forage, minimize disturbance, and manage habitat in the Gunnison Gorge and Camel Back areas for bighorn sheep.	Manage habitat and minimize disturbance in the Gunnison Gorge and Camel Back areas for bighorn sheep.
		Continue management of the Gunnison Forks HMP area for fisheries and wildlife habitat benefits.	Revise the Gunnison Forks HMP to restrict ORV and other recreation use, and to accommodate livestock grazing and oil and gas activities.	Continue management of the Gunnison Forks HMP area for fisheries and wildlife habitat benefits.	Intensively manage and provide 1,990 acres along the Gunnison River for waterfowl habitat.  Intensively manage 70 miles of streams for restoration and protection of aquatic habitats.
LIVESTOCK GRAZING	Develop AMPs for "I" category grazing allotments if no plan exists. Maintain existing AMPs on "M" "C" allotments. Continue monitoring on all allotments, with emphasis on "I" allotments.	Allow intensive management on 353,068 acres of "I" allotments; maintain current conditions on 65,497 acres of "M" allotments; manage 38,900 acres as "C" allotments. Manage 25,612 acres as unallotted; authorize no grazing use on currently unallotted areas.	Allow intensive management on 353,068 acres of "I" allotments; maintain current conditions on 65,497 acres of "M" allotments; manage 58,695 acres as "C" allotments (includes suitable existing unallotted areas). Manage 5,817 acres as unallotted areas.	Allow intensive management on 350,796 acres of "I" allotments; maintain current conditions on 65,497 acres of "M" allotments; manage 38,433 acres as "C" allotments. Manage 28,351 acres as unallotted; all unallotted areas would remain unallotted.	Allow intensive management on 336,562 acres of "I" allotments; maintain current conditions on 74,817 acres of "M" allotments; manage 39,033 acres as "C" allotments. Suitable unallotted public lands (26,873 acres) could be considered for grazing use authorizations except on areas where big game has priority for forage allocations.
		Manage at present forage allocation levels; future forage increases would be divided evenly between livestock and big game.	Manage at present forage allocation levels; future forage increases would be allocated to livestock.	Manage for no additional forage allocations to livestock.	Manage at present forage allocation levels. Future additional forage would be allocated to livestock on 186,810 acres, and divided evenly between livestock and big game on 207,169 acres.

COMPARISON OF ALTERNATIVES

Table 3-8 (continued)

SOURCE/ SOURCE	GENERAL GUIDANCE	MANAGEMENT UNDER EACH ALTERNATIVE			
		Continuation of Current Management Alternative	Production Alternative	Conservation Alternative	Preferred Alternative
STOCK SINKING (continued)		<p>Implement projects and land treatments to meet AMP objectives with restrictions protecting other resource needs.</p> <p>Livestock grazing use would be in accordance with the Uncompahgre Basin RPS and its updates.</p>	<p>Implement projects and land treatments to meet AMP objectives with minimal restrictions.</p> <p>Livestock grazing use would be restricted on adobe soils (9,201 acres) during the spring.</p>	<p>Land treatments and facility developments would be restricted on 124,963 acres.</p> <p>Livestock grazing use would be eliminated on 3,059 acres and restricted (season of use, utilization) on 75,626 acres.</p>	<p>Land treatments and facility developments would be restricted on 149,261 acres.</p> <p>No livestock grazing use would be allowed on 5,792 acres due to RMP decisions and unsuitability for grazing. Livestock grazing authorizations are unlikely on an additional 6,967 acres because of future wildlife forage needs. Livestock grazing would be restricted (season of use, utilization) on 39,410 acres.</p>
FORESTRY	<p>Manage both commercial forest and suitable woodlands for sustained yield production with harvest restrictions determined by the TPCC inventory.</p>	<p>Commercial forest on 3,482 acres (257 MBF/year) and suitable woodlands on 6,536 acres (327 cords/year) would be managed for sustained yield production. Seasonal restrictions would be applied on a case-by-case basis.</p>	<p>Commercial forest on 2,001 acres (148 MBF/year) and suitable woodlands on 7,072 acres (353 cords/year) would be managed for sustained yield production with no seasonal restrictions.</p>	<p>Commercial forest on 2,251 acres (166.5 MBF/year) and suitable woodlands on 31,997 acres (1,600 cords/year) would be managed for sustained yield production. Seasonal restrictions would apply on 1,263 acres of commercial forest.</p>	<p>Commercial forest on 3,127 acres (160.5 MBF/year) and suitable woodlands on 24,255 acres (1,213 cords/year) would be managed for sustained yield production. Seasonal restrictions would apply on 1,606 acres of commercial forest.</p>
RECREATION	<p>Manage the Gunnison Gorge SRMA in accordance with its RAMP. Continue to manage the Needle Rock ONA and develop a management plan.</p>	<p>Continue management of the the Gunnison Gorge recreation area (61,067 acres) for motorized and non-motorized recreation opportunities.</p> <p>Manage whitewater boating use in the Gunnison Gorge for a maximum of 10 group encounters per day. Commercial overnight trips would be limited to 2 per day. Unrestricted day-use would not exceed 10 group encounters per day.</p> <p>Manage the remainder of the planning area for extensive recreation use.</p>	<p>Manage the inner Gunnison Gorge (21,038 acres) for intensive recreation use.</p> <p>Manage whitewater boating use in the Gunnison Gorge for a maximum of 20 group encounters per day, with 8 overnight and 12 day-use permits issued daily (one-half commercial; one-half private).</p> <p>Manage the lower Gunnison River, below Escalante Bridge, as an SRMA and develop river access.</p> <p>Manage the remainder of the planning area for extensive recreation use.</p>	<p>Manage the Gunnison Gorge recreation area (40,792 acres) for motorized and non-motorized recreation opportunities.</p> <p>Manage the Gunnison Gorge WSA (21,038 acres) for wilderness values and whitewater boating opportunities. Maximum boating use would be 6 group encounters per day, with 3 overnight and 3 day-use permits issued daily (one-third commercial; two-thirds private).</p> <p>Manage the lower Gunnison River, below Escalante Bridge, as an SRMA for boating opportunities.</p> <p>Restrict recreation use to primitive walk-in access in the Escalante Canyon RNA.</p>	<p>Manage the Gunnison Gorge recreation area (40,792 acres) for motorized and non-motorized recreation opportunities.</p> <p>Until a decision is made on wilderness designation or non-designation, manage the Gunnison Gorge WSA (21,038 acres) for non-motorized recreation and whitewater boating opportunities. Boating use would be limited to 6 to 10 group encounters per day with no more than 2 overnight commercial trips starting the same day.</p> <p>Manage the lower Gunnison River, below Escalante Bridge, for boating opportunities. Develop river access and provide maps and information.</p> <p>Manage and develop the Escalante Canyon ACEC for recreation use that does not conflict with T&amp;E plants and unique plant associations.</p>

CHAPTER THREE

Table 3-8 (continued)

RESOURCE/ RESOURCE USE	GENERAL GUIDANCE	MANAGEMENT UNDER EACH ALTERNATIVE			
		Continuation of Current Management Alternative	Production Alternative	Conservation Alternative	Preferred Alternative
RECREATION (continued)				Manage the North Delta adobe area (8,942 acres) as an SRMA for ORV use.  Manage the Storm King Peak area (1,520 acres) for possible development of a commercial ski area.  Manage the remainder of the planning area for extensive recreation use.	Manage the North Delta adobe area (8,942 acres) for ORV use.  For a 5-year period, manage the Storm King Peak area so as not to preclude possible development of a commercial area. After the 5-year period, management actions that could adversely affect commercial recreation potential would be allowed.  Manage the remainder of the planning area for extensive recreation use.
OFF-ROAD VEHICLES		A total of 444,521 acres would be open to ORV use and 21,038 acres would be closed to ORV use. Vehicle use would be limited to designated roads and trails on 17,518 acres.	A total of 208,952 acres would be open to ORV use and 35 acres would be closed to ORV use. Vehicle use on 49,840 acres would be limited to designated roads and trails yearlong and another 224,250 acres would have seasonal limited designations.	A total of 151,000 acres would be open to ORV use and 44,137 acres would be closed to ORV use. Vehicle use on 147,059 acres would be limited to designated roads and trails yearlong and another 140,881 acres would have seasonal limited designations.	A total of 261,589 acres would be open to ORV use and 29,821 acres would be closed to ORV use. Vehicle use on 56,271 acres would be limited to designated roads and trails yearlong and another 135,396 acres would have seasonal limited designations.
CULTURAL RESOURCES	Continue to inventory and monitor cultural resource sites; require clearances for all surface disturbing activities.	Perform necessary stabilization, restoration, and interpretation of sites in the Gunnison Gorge Recreation Area.	Conduct a Class III inventory on 2,738 acres.	Temporarily manage 2,738 acres as Current Scientific Use Areas. Allow no projects or land treatments. Conduct a Class III inventory and protect cultural values in the area. High-value sites would be assigned a long-term protective classification.	Conduct a Class III inventory on 5,848 acres. Some high-value sites could be assigned a long term protective classification.
VISUAL RESOURCES		Visual resource management would be under current VRM classifications: Class I - 80 acres, Class II - 64,800 acres, Class III - 46,580 acres, Class IV - 371,617 acres.	Visual resource management would be: Class I - 80 acres, Class II - 64,800 acres, Class III - 46,580 acres, Class IV - 371,617 acres.	Visual resource management would be: Class I - 43,807 acres, Class II - 47,852 acres, Class III - 37,355 acres, Class IV - 354,063 acres.	Visual resource management would be: Class I - 21,118 acres, Class II - 30,430 acres, Class III - 297,154 acres, Class IV - 134,375 acres.
WILDERNESS		Recommend all three WSAs (41,865 acres) as non-suitable for wilderness designation.	Recommend all three WSAs (41,865 acres) as non-suitable for wilderness designation.	Recommend all three WSAs (41,865 acres) as suitable for wilderness designation.	Recommend the Gunnison Gorge WSA (21,038 acres) as suitable for wilderness designation. Recommend both the Camel Peak WSA (10,402 acres) and the Adobe Badlands WSA (10,425 acres) as non-suitable for wilderness designation.

COMPARISON OF ALTERNATIVES

Table 3-8 (continued)

URCE/ URCE	GENERAL GUIDANCE	MANAGEMENT UNDER EACH ALTERNATIVE			
		Continuation of Current Management Alternative	Production Alternative	Conservation Alternative	Preferred Alternative
ERNES ued)		Manage all three areas under a general multiple-use policy. The Gunnison Gorge area would be managed with emphasis on recreation and habitat for T&E animal species.	Manage all three areas with emphasis on live-stock grazing and mineral exploration. The protective withdrawal would be lifted on the Gunnison Gorge. The area would be managed for possible hydroelectric development.		Manage the Camel Back area with emphasis on riparian/aquatic system management, wildlife habitat, and livestock grazing. Manage the Adobe Badlands area with emphasis on salinity control and wildlife habitat.
IR TIES		Public lands on 421,930 acres would be open to development of major utilities; 40,029 acres would be open but not preferred for utility development; 21,118 acres would be excluded from utility development.	Public lands on 449,597 acres would be open to development of major utilities; 33,480 acres would be excluded from utility development.	Public lands on 106,851 acres would be open to development of major utilities; 32,356 acres would be open but not preferred for utility development; 69,906 acres would be excluded from utility development. Special stipulations would restrict utility development on 273,964 acres.	Public lands on 301,006 acres would be open to development of major utilities; 75,255 acres would be excluded from utility development. Special stipulations would restrict utility development on 106,816 acres.
RE STMENT	As opportunities are presented, primarily through exchange, pursue acquisition of non-federal lands which would meet established criteria and enhance resource management within emphasis areas.	Consider 19 tracts of public land totalling 830.25 acres as suitable for disposal.  Pursue acquisition of 2,200 acres of private land in the Gunnison Gorge Recreation Area.	Consider 171 tracts of public land totalling 29,496 acres as suitable for disposal.  Pursue acquisition of 3,640 acres of Colorado DOW land in the Escalante Creek area and available private land near Dry Creek and along the lower Gunnison River below the Roubideau Creek junction in proposed waterfowl areas.	Consider no public lands as suitable for disposal.  Pursue acquisition of 2,200 acres of private land in the Gunnison Gorge Recreation Area and 320 acres of private land in and adjacent to the Camel Back WSA. Pursue acquisition of private lands in proposed waterfowl areas, in riparian zones, and in crucial deer and elk winter ranges.	Consider 169 tracts of public land totalling 27,424 acres as suitable for disposal.  Pursue acquisition, primarily through exchange, of private lands which meet established criteria and enhance resource management within emphasis areas.
SS		Acquire public road access into 14 areas and public trail access into one area.	Acquire public road access into 13 areas.	Acquire public road access into 7 areas.	Acquire public road access into 15 areas and public trail access into one area.
GEMENT		All public lands in the planning area (483,077 acres) would have full and immediate fire suppression, with safety and cost-effectiveness considerations.	Public lands totalling 112,945 acres would have intensive fire suppression; 201,799 acres would have conditional fire suppression. Prescribed fire would be permitted on 168,333 acres.	Public lands totalling 112,945 acres would have intensive fire suppression; 201,799 acres would have conditional fire suppression. Prescribed fire would be permitted on 168,333 acres.	Public lands totalling 110,252 acres would have intensive fire suppression; 202,895 acres would have conditional fire suppression. Prescribed fire would be permitted on 169,930 acres.

**CHAPTER FOUR**  
**ENVIRONMENTAL CONSEQUENCES**

# CHAPTER FOUR

## ENVIRONMENTAL CONSEQUENCES

Chapter Four describes the physical, biological, and economic consequences of implementing the resource management alternatives described in Chapter 3.

The chapter discusses only those resources which would be impacted as a result of implementation of the proposed management actions. Topography, geology, and prime and unique farmlands would not be impacted by the BLM's management actions and are therefore not discussed.

Both adverse and beneficial impacts, based on the effects of proposed management alternatives, were analyzed. The impact analyses also reflect a comparison of these environmental consequences with the affected environment (Chapter Two).

Mitigating measures designed to avoid or reduce environmental impacts were incorporated into the management alternatives. Impacts identified in this chapter are considered unavoidable given the prescribed mitigation.

### ASSUMPTIONS AND GUIDELINES

An interdisciplinary approach was used in developing and analyzing environmental consequences. The general assumptions and guidelines which defined the process included:

1. Only significant changes or impacts, which vary by resource and alternative, would be analyzed.
2. Changes or impacts described are short-term unless otherwise stated. Short-term impacts would occur within the life of the plan (10 to 12 years); long-term impacts would occur over a 20-year period.
3. Proposed management actions would be analyzed under the assumption that the alternatives would be fully implemented and that adequate funding and staffing would be available for implementation.

### CHAPTER FORMAT

Chapter Four is presented in sections, with the first four sections providing an analysis of the environmental consequences (impacts) that would result from implemen-

tation of each alternative. The final section is a comparison of the alternative impacts.

Each alternative impact section is subdivided by impacted resources or resource uses. Impacts are then described as (1) Impacts from Proposed Management Actions, and (2) Cumulative Impacts. (Where cumulative impacts are not presented separately, they would be the same as the impacts from proposed management actions.)

The analyses of impacts are presented as *Impacts on a resource/resource use that would result from a proposed management action or actions*. For example, *impacts on air quality would result from proposed off-road vehicle management*.

### IMPACTS OF THE CONTINUATION OF CURRENT MANAGEMENT ALTERNATIVE

#### IMPACTS ON AIR QUALITY

##### *IMPACTS FROM PROPOSED MANAGEMENT ACTIONS*

**Impacts from Air Quality Management.** Air pollution emissions from primary sources would be minimized through enforcement of applicable policies, regulations, and statutes.

**Impacts from Wildlife Habitat and Livestock Grazing Management.** Short-term localized impacts on air quality would result from vegetation manipulation practices. These minor impacts would be dispersed throughout the planning area.

**Impacts from Off-Road Vehicle Management.** Managing 92 percent of the planning area as open to ORV use would result in increased fugitive dust emissions due to vehicle-caused soil erosion. This impact could reach significant levels in adobe soil areas as the demand for ORV recreation increases.

##### *CUMULATIVE IMPACTS ON AIR QUALITY*

Increased levels of air pollution are anticipated due to regional growth and development. No land-use allocations specified in this alternative would have significant long-term effects on air quality.

## CHAPTER FOUR

### IMPACTS ON COAL

#### IMPACTS FROM PROPOSED MANAGEMENT ACTIONS

**Impacts from Coal Management.** Allowing the continued development of 26,663 acres of existing coal leases and identifying 20,737 acres of federal coal estate as acceptable for further coal leasing consideration could permit the leasing and mining of up to 2,469 million tons of in-place coal. The possible leasing of this coal would exceed coal demand over the life of this plan as the 1985 coal production from Delta and Gunnison counties was 2.2 million tons and the optimistic annual coal production forecasts for this area range from 4.5 to 7.35 million tons for the years 1990 to 2000.

Identifying the remaining 62,597 acres of coal lands within the coal areas as unacceptable for further coal leasing consideration would preclude development of an estimated 3,261 million tons of coal. Identifying the 1,756 acres of federal coal reserves under private surface and bounded by the Gunnison National Forest as unacceptable for further coal leasing consideration would preclude development of an additional 101 million tons of in-place coal. Precluding coal development on these lands would not effect coal production levels over the life of the plan but would decrease coal leasing opportunities.

**Impacts from Oil and Gas Management.** Leasing and subsequent development of oil and gas in the same areas identified as acceptable for further coal leasing consideration could reduce considerably the amount of coal available for mining. This reduction would depend on the scope and timing of development of both resources and the amount of coal determined necessary to be left as pillars to protect oil and gas wells. No projections have been made on coal losses due to oil and gas well protection. However, there could be a conflict if the amount of coal required to be left in place would make the area uneconomical to mine.

### IMPACTS ON OIL AND GAS

#### IMPACTS FROM PROPOSED MANAGEMENT ACTIONS

**Impacts from Oil and Gas Management.** Table 4-1 lists the management of oil and gas leases on federal surface/federal oil and gas estate by management unit. An additional 223,657 acres of private surface/federal oil and gas estate is available for leasing with standard lease terms.

**Impacts from Coal Management.** Coal mining could result in delays in drilling schedules, higher drilling and development costs, and requirements for use of special drilling techniques and alternate drilling sites. Coal mining could damage existing wells and could remove or reduce gas resources if potential gas producing zones were located within mineable coal beds.

Table 4-1

MANAGEMENT OF OIL AND GAS LEASES ON  
FEDERAL SURFACE/FEDERAL OIL AND GAS ESTATE BY MANAGEMENT UNIT:  
CONTINUATION OF CURRENT MANAGEMENT ALTERNATIVE

MANAGEMENT UNIT	ACRES WITH STANDARD LEASE TERMS	ACRES WITH CASE-BY-CASE LEASE TERMS	ACRES WITH SEASONAL STIPULATIONS		ACRES WITH NO SURFACE OCCUPANCY STIPULATIONS
			11/30 to 5/1	11/30 to 5/16	
A-1	4,353	0	16,607	0	0
A-2	130,383	0	133,701	1,887	0
A-3	27,147	31,200	2,720	0	0
A-4	0	0	0	0	80
A-5	0	0	0	0	140
A-6	59,824	0	74,362	673	0
TOTALS	221,707	31,200	227,390	2,560	220

## CURRENT MANAGEMENT IMPACTS

**Impacts from Wildlife Habitat Management.** Managing the 140-acre Gunnison Forks habitat management area with a no surface occupancy stipulation would result in higher drilling and development costs as directional drilling would be required. Managing crucial deer and elk winter range (227,390 acres) and sage grouse strutting grounds (2,560 acres) with seasonal stipulations could result in higher exploration, drilling, and development costs, along with scheduling inconvenience.

**Impacts From Recreation Management.** Managing the 80-acre Needle Rock ONA with a no surface occupancy stipulation would result in higher drilling and development costs as directional drilling would be required.

### CUMULATIVE IMPACTS ON OIL AND GAS

All federal oil and gas estate would be available for leasing. Managing 220 acres with a no surface occupancy stipulation would result in higher drilling and development costs for operations on these areas. This negative impact would be low to moderate since this area has only a low to moderate favorability for oil and gas production. Managing 229,950 acres with seasonal stipulations and 31,200 acres with stipulations assigned on a case-by-case basis could result in higher exploration and development costs along with scheduling inconvenience. Any increase in exploration and development costs could lower the potential for oil and gas production in the planning area. Conflicts could arise between coal development and oil and gas exploration and development. Managing 445,364 acres with standard lease terms would allow for exploration and development with few restrictions.

### IMPACTS ON LOCATABLE MINERALS

#### IMPACTS FROM PROPOSED MANAGEMENT ACTIONS

**Impacts from Locatable Minerals Management.** Identifying 615,892 acres as open to mineral entry and location would make this acreage available for exploration and development under the general mining laws. Continuing current withdrawals on 59,250 acres would eliminate these lands from possible mineral location and development. Interest has been expressed in prospecting for placer gold, uranium, and gypsum on withdrawn lands but no deposits have been identified.

### IMPACTS ON MINERAL MATERIALS

#### IMPACTS FROM PROPOSED MANAGEMENT ACTIONS

**Impacts from Mineral Materials Management.** Identifying 480,805 acres as open to disposal of mineral materials would make this resource available to the public and government entities on nearly all of the planning area.

Closing 220 acres to disposal of mineral materials would have a negligible impact as there are no high-value mineral materials on these lands and numerous alternative areas are available elsewhere in the planning areas. Requiring approval of the withdrawing agency for disposal of mineral materials on 59,250 acres could result in the denial of permit applications on these lands. Denial of a permit could increase the applicant's costs of hauling mineral materials if distances to open areas are greater than to the area identified in the permit application.

### IMPACTS ON SOILS

#### IMPACTS FROM PROPOSED MANAGEMENT ACTIONS

**Impacts from Soils Management.** Minimizing soil disturbance from all surface-disturbing activities on public lands would decrease potential losses of soil productivity. Maintaining the existing 15- to 20-year old soil erosion projects would decrease erosion rates in project areas.

**Impacts from Mineral Resources Management.** Surface-disturbing activities would decrease soil productivity over the short-term through soil compaction, erosion, mixing of soil horizons, and reduced soil moisture retention capabilities. Coal development could result in soil productivity losses on less than 1,000 acres, including soil slumping and mud flows on steep slopes. Development of oil and gas leases, locatable minerals, and mineral materials on 69,414 acres of highly erodible soils during critical soil moisture periods (March 1 through May 31) would decrease soil productivity over the long-term. Accidental fluid discharges during oil and gas drilling operations could contaminate soils.

**Impacts from Wildlife Habitat and Livestock Grazing Management.** Managing 353,068 acres as "I" category grazing allotments would lower erosion rates and reduce soil compaction in these areas if AMP objectives to increase ground cover are achieved. Permitting livestock grazing during critical soil moisture periods (March 1 through May 31) combined with forage utilization greater than 35 percent on 69,414 acres of highly erodible soils would sustain high erosion rates in these areas. Short-term soil losses would increase from one to ten times the present rate on vegetation treatments designed to increase livestock and wildlife forage. Soil productivity would surpass present levels over the long-term if treatments increase basal ground cover.

**Impacts from Forest Management.** Road construction and harvesting practices on commercial forests and woodlands would increase short-term erosion rates and soil compaction. Erosion rates would stabilize and decrease over the long-term as mitigation is applied and regeneration occurs.

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**Impacts from Recreation Management.** Managing 17,980 acres of highly erodible soils within the Gunnison Gorge SRMA for recreational ORV opportunities would result in significant long-term erosion, which would increase as more ORV enthusiasts become aware of and utilize this recreation area.

**Impacts from Off-Road Vehicle Management.** Managing 92 percent of the planning area as open to ORV activities would decrease soil productivity as ORV use disturbs soils, tramples vegetation, and accelerates soil erosion. This soil deterioration would be most significant on 69,414 acres of highly erodible soils.

**Impacts from Fire Management.** Managing the planning area as an immediate fire suppression area would minimize the amount of short-term erosion as few acres of protective ground cover would be burned. However, erosion rates would remain high in sagebrush parks and pinyon-juniper woodlands as fire suppression would not allow for a natural vegetation type conversion to more protective grasses and forbs. Fire suppression activities (fire line, ORV use) could also decrease soil productivity by removing topsoil, compacting soil, and increasing erosion.

### *CUMULATIVE IMPACTS ON SOILS*

Surface-disturbing activities including mineral development, forest and woodland harvests, and ORV use would cause a slight loss of soil productivity throughout much of the planning area. Intensive livestock grazing management on 353,068 acres would decrease erosion and enhance soil characteristics for an overall net soil productivity increase within the planning area for the life of the plan.

## IMPACTS ON WATER RESOURCES

### *IMPACTS FROM PROPOSED MANAGEMENT ACTIONS*

**Impacts from Water Resources Management.** Maintaining the ponding dike systems in the Elephant Skin Wash project area would prevent 1,434 to 2,209 tons of salt and 47,845 to 73,708 tons of sediment from entering local surface waters and the Colorado River Basin over the life of project. Maintaining these facilities would provide some flood control benefits for downstream areas.

**Impacts from Coal Management.** Coal leasing and development would result in increased sediment yields from roads, mine facilities, and surface-disturbing activities. Mine water discharges and spoil-pile runoff could increase salt levels in local surface water systems. Fracturing and subsidence of rock strata from underground mining could decrease the quantity and quality of ground water. Loss of either surface or ground water would impact adjudicated water rights and diminish local domestic and agricultural water supplies.

**Impacts from Oil and Gas Management.** Identifying 706,734 acres as acceptable for oil and gas leasing could result in impacts on surface and ground water. Construction of roads and drilling pads would increase sediment and salinity yields in local surface waters. These impacts would be most pronounced on 69,414 acres of easily eroded and/or highly saline soils as oil and gas operations would be permitted during critical wet soil periods (March 1 through May 31) when these soils are most susceptible to damage. Accidental fluid discharges during drilling operations could contaminate surface water. Drilling could also cause aquifer mixing, resulting in ground water degradation.

**Impacts from Locatable Minerals Management.** Identifying 91 percent of the planning area as open to mineral entry and location could result in water quality degradation. Road construction and other mine-related disturbances would increase sediment and salinity loads in local surface waters. These impacts would be greatest from placer mining operations. All operations could result in heavy metal contamination from mine water discharges and spoil-pile runoff. Drilling and underground mining could cause aquifer mixing, resulting in degradation of ground water.

**Impacts from Mineral Materials Management.** Managing nearly all of the planning area as open to disposal of mineral materials would impact water resources. Road construction and extraction of mineral materials would increase sediment and salt loads in local surface waters. These sediment and salt increases would be most pronounced from mineral material activities on 69,414 acres of easily eroded soils during critical wet soil periods (March 1 through May 31).

Mineral material operations in close proximity to perennial water courses would have the potential of destabilizing and altering natural stream channels and disrupting the beneficial values of floodplains. These impacts could result in changes in water tables and surface water flows and could increase the destructiveness of floods.

**Impacts from Wildlife Habitat Management.** Short-term sediment increases would result from vegetation treatments designed to benefit wildlife habitat. Sediment yields would decrease over time if treatments increase basal ground cover. Protection of riparian and aquatic habitats would enhance protection of water quality by limiting surface disturbance and filtering sediment produced from adjacent upland areas.

**Impacts from Livestock Grazing Management.** Managing 353,068 acres as "I" category grazing allotments would result in lower surface water sediment loads if AMP objectives to increase ground cover are achieved. Short-term sediment increases would result from vegetation treatments. Permitting grazing during critical wet soil periods (March 1 through May 31) and forage utilization levels greater than 35 percent would result in continued high

## CURRENT MANAGEMENT IMPACTS

salinity and sediment yields on 69,414 acres of easily eroded soils.

**Impacts from Forest Management.** Commercial forest harvest would result in increased surface water sediment yields as roads are constructed and timber is removed. Woodlands harvest would result in increased sediment yields as soils are disturbed during harvest-related road construction and ORV use. Sediment load increases from woodland areas would subside over time if harvest results in increased basal ground cover.

**Impacts from Recreation Management.** Managing 13,877 acres of highly erodible and saline soils within the Gunnison Gorge SRMA for recreational ORV opportunities would result in increased salt and sediment loads in local surface waters. Deterioration of water quality would increase as more ORV enthusiasts become aware of and utilize this recreation area. The effectiveness and life of the Elephant Skin Wash salinity control project would be diminished.

**Impacts from Off-Road Vehicle Management.** Managing 92 percent of the planning area as open to ORV activities would allow for sediment load increases as soils are disturbed and vegetation is trampled. Water quality deterioration would be greatest from ORV use on 69,414 acres of highly erodible and saline soils.

**Impacts from Major Utility Development.** Managing 461,959 acres as open to development of major utility facilities would allow for sediment load increases due to construction and maintenance activities. Water quality deterioration would be greatest from these activities during wet soil periods (March 1 through May 31) on 69,414 acres of highly erodible and saline soils.

**Impacts from Fire Management.** Managing the entire planning area for immediate fire suppression would minimize the amount of short-term sediment production as few acres of protective ground cover would be burned. However, sediment loads would remain high from pinyon-juniper woodlands as fire suppression would not allow for a natural vegetation type conversion to more protective grasses and forbs. Fire suppression activities (fire lines, ORV use) could also decrease watershed productivity by removing protective vegetation and increasing erosion and sedimentation. The overall net deterioration in watershed condition would depend on site-specific variables.

### CUMULATIVE IMPACTS ON WATER RESOURCES

Sediment and salinity yields would increase slightly over present conditions due primarily to mineral development, forest and woodland harvests, livestock grazing, and ORV activities. Completion and maintenance of the Elephant Skin Wash salinity control project would offset sediment and salinity yields by retaining 1,434 to 2,209 tons of salt and

47,845 to 73,708 tons of sediment over the 10- to 15-year life of the plan.

## IMPACTS ON RIPARIAN ZONES

### IMPACTS FROM PROPOSED MANAGEMENT ACTIONS

**Impacts from Riparian Zone Management.** Efforts to limit and mitigate surface-disturbing activities in riparian zones would decrease potential destruction but would do little to improve current conditions.

**Impacts from Mineral Resources Management.** Road construction, facility development, transportation systems, and other surface-disturbing activities occurring within riparian zones would remove riparian vegetation and could redirect subsurface water needed to support the vegetation complex. These types of activities would be expected to occur on 20 acres of riparian zones over the next ten years. Approximately 380 acres of riparian zones currently withdrawn from mineral entry and location would be protected from placer mining.

**Impacts from Soils and Water Resources Management.** Impoundments created to control erosion, sedimentation, and salinity would improve conditions necessary for establishment of riparian vegetation. This could potentially increase riparian zones by 40 to 80 acres over the long-term.

**Impacts from Wildlife Habitat Management.** Development of wildlife projects would improve riparian conditions through improved distribution of big game species and reduced utilization of riparian vegetation.

**Impacts from Livestock Grazing Management.** Development of grazing systems and reduced forage utilization and trailing use in riparian zones would improve vegetation condition at least one level on approximately 3,500 acres. Species diversity, density, and stability would be improved.

**Impacts from Forest Management.** Road and facility construction and other surface-disturbing activities in riparian zones would remove riparian vegetation. It is estimated that less than 25 acres of riparian vegetation would be impacted by forestry activities over the next ten years. These impacts would last only as long as roads remain open and other facilities are utilized.

**Impacts from Recreation Management.** Intensive recreational use of riparian zones such as the Gunnison Forks area would destroy riparian vegetation through vehicle use, trampling, and camping activities. This use prevents re-establishment of vegetation due to soil compaction.

**Impacts from Off-Road Vehicle Management.** Unrestricted ORV use in riparian zones would destroy riparian vegetation, create severe ruts, and redirect subsurface

## CHAPTER FOUR

water. Riparian acreage impacted by ORV use is expected to increase significantly over the next ten years if no controls are implemented.

**Impacts from Major Utility Development.** Locating roads, pipelines, and powerlines in riparian zones would destroy riparian vegetation and could redirect subsurface water. Although only limited acreage would be involved, the impacts could be long-term.

### *CUMULATIVE IMPACTS ON RIPARIAN ZONES*

Management of livestock grazing, wildlife habitat, and soils and water resources would have a substantial positive effect on improvement and overall condition of riparian zone quality. Loss or degradation of riparian zones due to mineral development, recreation, ORV use, and possible development of major public utilities would be a long-term impact on limited acreage. Approximately one-half of the area's riparian zones would be improved under this alternative.

## IMPACTS ON THREATENED AND ENDANGERED SPECIES

### *IMPACTS FROM PROPOSED MANAGEMENT ACTIONS*

**Impacts from Threatened and Endangered Species Management.** Requiring clearances on all surface-disturbing activities would protect threatened, endangered, and candidate plant and animal species and their habitat. Some inadvertent destruction of individual plants would still occur. The unique plant associations in Escalante Canyon and the important communities of clay-loving wild buckwheat and Montrose penstemon east of Montrose would not be protected which could lead to a loss of scientific information and research potential.

**Impacts from Mineral Resources Management.** Maintaining existing withdrawals on 41,608 acres in the Gunnison Gorge and on the lower Gunnison River would protect these areas from mineral-related disturbance. Habitat would be maintained for wintering bald eagles, peregrine falcons, and the Uinta Basin hookless cactus. Requiring no surface occupancy stipulations on 140 acres of potential habitat would protect all threatened and endangered plant species from inadvertent destruction.

**Impacts from Soils and Water Resources Management.** Watershed improvement projects would improve prey species habitat which would be slightly beneficial to bald eagles and peregrine falcons.

**Impacts from Wildlife Habitat Management.** Improving riparian vegetation conditions and protecting the Gunnison Forks riparian zone from excessive destruction

would enhance habitat conditions for river otters and wintering bald eagles.

**Impacts from Livestock Grazing Management.** Some localized disturbance and/or destruction of individual threatened and endangered plants may occur due to livestock trampling.

**Impacts from Off-Road Vehicle Management.** Designating 200,000 acres as open to ORV use would result in some disturbance of wintering bald eagles and some additional loss of threatened, endangered, and candidate plants.

### *CUMULATIVE IMPACTS ON THREATENED AND ENDANGERED SPECIES*

Loss of individual threatened and endangered plant species would continue, due primarily to unrestricted ORV use. Threatened and endangered wildlife habitats would remain in their present condition.

## IMPACTS ON TERRESTRIAL WILDLIFE HABITAT

### *IMPACTS FROM PROPOSED MANAGEMENT ACTIONS*

**Impacts from Wildlife Habitat Management.** Management of non-game wildlife habitat on 140 acres in the Gunnison Forks habitat management area would remain unchanged. Habitat improvement area-wide for present and future big game populations (including bighorn sheep) would be achieved. Increasing forage production from public land by 31 percent through habitat management projects would more than satisfy big game forage demands over the next 20 years.

**Impacts from Coal Management.** Expanded road construction, portal development, clearings, and other surface-disturbing activities would reduce big game habitat by a minimum of 90 acres. Any loss of winter range, especially in the North Fork area, would put additional pressure on undisturbed areas. Golden eagles and other raptors could suffer some loss of hunting grounds to mine-related facilities and associated disturbance.

**Impacts from Oil, Gas, and Geothermal Management.** No surface occupancy restrictions on 255 acres and seasonal restrictions on 229,950 acres would reduce disturbance of wintering deer and elk. Human activity and construction operations tend to repel big game species, creating distribution and forage over-utilization problems on undisturbed acres. This increased stress on wintering big game species would reduce weights and increase susceptibility to disease.

## CURRENT MANAGEMENT IMPACTS

**Impacts from Livestock Grazing Management.** Development of grazing systems, land treatment projects, and improved livestock management practices would improve browse conditions on 23,660 acres of public land. Competition between livestock and wildlife would be reduced and habitat conditions on crucial deer and elk winter range would be improved. Land treatment projects designed to reduce sagebrush cover to less than 20 percent would eliminate present and potential sage grouse habitat in the Simms Mesa and Green Mountain areas.

**Impacts from Forest Management.** Wildlife habitat, except for those few bird species needing old growth pinyon-juniper woodlands, would be improved by harvests. Openings in the overstory canopy would increase forage production and allow for greater species diversity.

**Impacts from Recreation Management.** Habitat for bighorn sheep, wintering deer and elk, and other non-game species would be maintained in those parts of the Gunnison Gorge SRMA closed to ORV use.

**Impacts from Off-Road Vehicle Management.** Habitat destruction and disturbance and harassment of wildlife would occur on 444,521 acres of public land open to ORV use.

**Impacts from Acquisition of Access.** Improved public access would generally be beneficial to wildlife habitat, allowing better harvest and population control of big game species. Public access into the Storm King and High Park areas could adversely affect elk calving during the spring.

### *CUMULATIVE IMPACTS ON TERRESTRIAL WILDLIFE HABITAT*

Terrestrial wildlife habitat would continue to improve due to additional land treatment projects and maintenance of existing projects. These projects would offset loss of habitat caused by mineral development and other surface-disturbing activities. Adequate forage would be available for big game over both the short-term and the long-term at presently projected population levels, but the possibility for significant population increases would not exist.

### **IMPACTS ON AQUATIC WILDLIFE HABITAT**

#### *IMPACTS FROM PROPOSED MANAGEMENT ACTIONS*

**Impacts from Wildlife Habitat Management.** Any land treatment projects which occur near streams would lead to a short-term increase in sedimentation and deterioration of water quality. Reduced vegetation cover would decrease streambank stability and organic input.

**Impacts from Coal Management.** Road and portal construction and development which occurs in or near stream channels would result in a loss of streambank cover, reduced bank stability, increased sedimentation, and increased water

temperatures. Overall, there would be a decrease in water and aquatic habitat quality on an estimated 15 stream miles.

**Impacts from Oil, Gas, and Geothermal Resources Management.** Road and pad construction and pipeline development in or near stream channels would result in loss of streambank vegetation, leading to increased sedimentation, water temperatures, and channelization.

**Impacts from Locatable Minerals Management.** Placer operations which involve dredging, vegetation removal, and streambank disturbance would have a severe impact on aquatic habitat systems. Water quality, water temperatures, bank and channel stability, and sedimentation would all be adversely impacted by these actions.

**Impacts from Mineral Materials Management.** Gravel pits or other mineral material excavations which occur in or adjacent to stream channels would have severe short-term impacts on bank and channel stability. Sedimentation at both the site and downstream would be increased, resulting in a deterioration of water quality.

**Impacts from Soils and Water Resources Management.** In-channel structures designed to reduce sedimentation and salinity would improve aquatic habitat quality of streams below these structures.

**Impacts from Livestock Grazing Management.** Intensive livestock grazing management, reduced trailing along streambanks, and use of grazing systems would improve streambank vegetation which would reduce sedimentation and improve bank stability. Approximately 22 stream miles of aquatic habitat would be improved under intensive management. Approximately 52 stream miles of aquatic habitat would be maintained at less than optimum conditions or would deteriorate over the long-term due to trampling and excessive livestock utilization of streambank vegetation. Land treatment projects in or near stream channels would lead to increased sedimentation and decreased water quality in the short-term.

**Impacts from Forest Management.** Road construction, skid trails, and landing decks in or near stream channels could result in loss of bank vegetation, and reduced channel stability and organic input. These impacts could be very damaging, particularly along smaller streams which could be more sensitive to disturbance.

**Impacts from Recreation Management.** Impacts to the aquatic habitat system within the Gunnison Gorge SRMA would be primarily due to increased trampling and camping use at the limited rest stops and campsites in the inner Gunnison Gorge. These activities tend to compact the soil, destroying the streambank vegetation which would accelerate bank erosion. In the Gunnison Forks area, recreational use, primarily trampling of streambank vegetation and vehicle use to and on the gravel bar, would

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continue to severely effect water quality and deteriorate aquatic habitat.

**Impacts from Off-Road Vehicle Management.** Unrestricted ORV use along and across streams throughout the planning area would lead to decreased streambank stability, increased sedimentation, and increased water temperatures. Most of these impacts are dispersed except in the Gunnison Forks area where vehicle use in and around the river channel is extensive.

**Impacts from Major Utility Development.** Road construction, pipeline development, and powerline pad clearings near streams which destroy streambank vegetation could lead to increased sedimentation, channelization, and water temperatures, and decreased organic input. These impacts would be fairly limited in scope and would not effect many miles of aquatic habitat.

### *CUMULATIVE IMPACTS ON AQUATIC WILDLIFE HABITAT*

Mineral development and other surface-disturbing activities in or adjacent to stream channels would degrade the quality of the aquatic habitat. Improved livestock management would improve and stabilize water quality and water temperatures and decrease sedimentations. Overall aquatic wildlife habitat would improve slightly under the Continuation of Current Management Alternative.

## IMPACTS ON LIVESTOCK GRAZING

### *IMPACTS FROM PROPOSED MANAGEMENT ACTIONS*

**Impacts from Livestock Grazing Management.** Development and monitoring of grazing systems, land treatment projects, and proper forage utilization would create an upward trend on 165,940 acres of public land, increase forage available for livestock grazing use from 38,951 to 40,479 AUMs, and ensure proper grazing management.

**Impacts from Soils and Water Resources Management.** In-channel structures and land treatment projects designed to reduce erosion and salinity would improve livestock distribution and increase forage available for livestock grazing.

**Impacts from Wildlife Habitat Management.** Increased big game forage demands on public lands over the next ten years would utilize an estimated 3,000 AUMs which could be allocated for livestock grazing use.

**Impacts from Forest Management.** Forage available for livestock grazing use would increase in most areas harvested for timber due to the openings created in the overstory canopy. It is expected that available forage would, at a minimum, double in these areas over an eight to ten year period.

**Impacts from Recreation Management.** Vandalism of livestock facilities would occur throughout the area but could become a significant problem in the Gunnison Gorge SRMA due to increased recreational use.

**Impacts from Off-Road Vehicle Management.** Indiscriminate ORV use in the more productive vegetation areas, such as riparian zones, would decrease the amount of forage available for livestock grazing use.

**Impacts from Access Acquisition.** All identified access acquisitions would improve administration of livestock grazing programs but could result in increased vandalism of livestock facilities.

**Impacts from Fire Management.** Full and immediate fire suppression would prevent many areas from returning to a more productive stage. This type of fire management would result in up to a 10 percent loss of AUMs of forage.

### *CUMULATIVE IMPACTS ON LIVESTOCK GRAZING*

Improved grazing management and land treatment projects would improve livestock distribution and increase forage available for livestock grazing by 1,528 AUMs by 1996.

## IMPACTS ON FORESTRY

### *IMPACTS FROM PROPOSED MANAGEMENT ACTIONS*

**Impacts from Forest Management.** Managing 3,482 acres of commercial forest lands for sustained yield production would result in annual harvests of 258 MBF of timber. Harvest of 123 acres of commercial forest on 160 acres land owned by the Girl Scouts of America would be precluded. Woodland management would result in annual harvests of 326 cords of fuelwood. Annual harvests of forest products would reduce the likelihood of disease and insect damage.

**Impacts from Mineral Resources Management.** Road and pad construction associated with mineral development would reduce available timber and woodland areas. The acreage lost would be minimal. Road construction could improve access into many potential sale areas, which would reduce timber harvesting costs.

**Impacts from Vegetation/Land Treatments.** Treatment projects associated with soils and water resources and livestock grazing management and wildlife habitat improvement would maintain 18,500 acres of suitable woodlands and convert an additional 18,907 acres of woodlands to a grass-shrub complex. These treatments would result in an annual loss of 1,870 cords of fuelwood, which would nearly eliminate fuelwood sales.

## CURRENT MANAGEMENT IMPACTS

**Impacts from Recreation Management.** The restrictions placed on woodland management in the Gunnison Gorge SRMA would eliminate harvest on 1,943 acres of woodlands and result in an annual loss of 97 cords of fuelwood.

**Impacts from Disposal of Public Lands.** Disposal of public land would preclude potential harvest of commercial timber on 80 acres of forest lands. The impact on the forestry program would be minimal since this action would reduce annual timber harvests by only 6 MBF.

**Impacts from Acquisition of Access.** Acquisition of public access into the Beaver Hill and Linscott Canyon areas would allow sales of fuelwood, Christmas trees, and wildings.

### *CUMULATIVE IMPACTS ON FORESTRY*

Multiple-use needs, primarily livestock grazing, would eliminate sustained yield production on 39,350 acres of suitable woodlands and result in an annual loss of 1,967 cords. Harvest of 203 acres of suitable commercial timber forest lands would be precluded, resulting in an annual loss of 15 MBF. Intensive management of forest resources would result in annual harvests of 258 MBF from 3,482 acres of suitable commercial timber forest lands and 326 cords from 6,536 acres of suitable woodlands.

## IMPACTS ON RECREATION

### *IMPACTS FROM PROPOSED MANAGEMENT ACTIONS*

**Impacts from Recreation Management.** Management of the Gunnison Gorge SRMA would provide greater opportunities for long-term public use of this significant recreation resource. Implementing the management plan would enhance recreation opportunities by providing facilities and information and protecting natural features that are crucial for long-term recreation use. In addition, a wide variety of recreation opportunities ranging from motorized ORV activities to scenic viewing in a non-motorized and natural environment would be maintained.

Allowing boating use within the Gunnison Gorge to a maximum of ten group encounters per day would meet existing river-use demands and greatly benefit whitewater boaters seeking an uncrowded and natural river. Only three other raftable whitewater rivers in Colorado, totalling 115 miles, offer these experiences. Recreation opportunities on two of these rivers are limited by demands that far exceed the number of annual use permits. Recreation use on the other river is limited by a very short boating season.

An unrestricted allocation of river day-use between commercial and private groups would accommodate the short-term demands of both groups. Over time, increased demands by both groups would exceed the recreation use limits and increase the probability that one group would

utilize a disproportionate number of available permits. Restricting commercial overnight permits to two per day without restricting private overnight trips would benefit private users at the expense of commercially-outfitted recreationists.

Retaining the ONA designation on Needle Rock would allow continued protection of this valued scientific, educational, and recreational resource. In addition, recreation opportunities within this predominantly natural but roaded environment would be maintained.

**Impacts from Mineral Resources Management.** Mining leased coal deposits in the Storm King Peak area would detract from the potential development of downhill skiing in the area. Mine facilities would deteriorate scenic qualities and could occupy lands needed for ski area facilities. Mine-related subsidence could cause the area to be unsuitable for ski-lift placement.

Retaining the BLM's protective withdrawal on 23,990 acres of the Gunnison Gorge SRMA would provide the greatest protection of the area's scenic qualities and recreation opportunities in predominantly natural environments. Maintaining seasonal no surface occupancy stipulations on oil and gas activities within crucial deer and elk winter range would enhance hunting opportunities. Maintaining the no surface occupancy stipulation on oil and gas activities and the closure to disposal of mineral materials in both the Needle Rock ONA and the Gunnison Forks habitat management area would protect these valued roaded but predominantly natural recreation settings.

Possible development of locatable minerals within the Needle Rock ONA would impair opportunities to view and study this significant geologic feature in a natural environment.

**Impacts from Wildlife Habitat Management.** Management of the Gunnison Forks and Billy Creek areas would enhance recreation opportunities for fishing, hunting, and wildlife observing. Preserving riparian areas would enhance scenic and wildlife viewing opportunities within these diverse habitats.

**Impacts from Forest Management.** Prohibiting woodland harvests in 98 percent of the Gunnison Gorge SRMA would protect significant and predominantly natural recreation settings.

**Impacts from Off-Road Vehicle Management.** Limiting vehicle use within the Gunnison Gorge SRMA to designated roads and trails on 14,445 acres, closing 21,038 acres to ORV use, and managing 25,584 acres as open to recreational ORV use would ensure a variety of desired recreation settings and opportunities in the SRMA. Retaining the open ORV designation on the Needle Rock ONA would allow vehicle-related degradation of a valued recreational setting.

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**Impacts from Visual Resources Management.** Protecting the scenic qualities of the Needle Rock ONA (VRM Class I) and the Gunnison Gorge portion of the SRMA (VRM class II) would ensure continued availability of high-quality and desired recreation settings and opportunities in these areas.

**Impacts from Major Utility Development.** Designating the Needle Rock ONA and the canyon portions of the Gunnison Gorge SRMA as closed to development of major utility facilities would protect high quality and predominantly natural settings.

**Impacts from Acquisition of Non-Federal Lands.** Acquiring 2,200 acres within or contiguous to the Gunnison Gorge SRMA would protect recreation settings, provide additional public access to the area, and reduce conflicts between recreationists and private landowners.

### CUMULATIVE IMPACTS ON RECREATION

Significant recreation settings and opportunities within the Gunnison Gorge SRMA and Gunnison Forks HMP area would be protected under this alternative. In other portions of the planning area, recreation settings and opportunities are anticipated to remain essentially unchanged except on Storm King Peak where coal development could degrade downhill ski area development opportunities, and in the Needle Rock ONA where potential mineral development could degrade scenic values.

## IMPACTS ON CULTURAL RESOURCES

### IMPACTS FROM PROPOSED MANAGEMENT ACTIONS

**Impacts from Cultural Resources Management.** Cultural resource clearances of areas proposed for disturbance would contribute to the cultural data base, decrease cultural site disturbances, and increase potential for discovery of sites eligible for inclusion in the National Register of Historic Places.

**Impacts from Recreation Management.** Managing 25,584 acres of the Gunnison Gorge SRMA for recreational ORV use would significantly increase the potential for vehicle-related damage to exposed cultural sites. Cultural resources would be more vulnerable to vandalism and illegal artifact collection by individuals using vehicles for easy access and transport of artifacts. Development of an interpretive brochure on the cultural resources of the Gunnison Gorge SRMA could reduce artifact collecting and site vandalism by increasing public appreciation of the resource. Restoring and stabilizing significant cultural sites in the SRMA would increase the longevity of cultural resources in the area.

**Impacts from Off-Road Vehicle Management.** Exposed cultural resources would remain vulnerable to vehicle-caused damage on the majority (92 percent) of the planning area managed as open to ORV activities. Cultural resources would also remain vulnerable to vandalism and illegal artifact collection by individuals using vehicles for easy access and transport of artifacts. Significant cultural resource areas on public lands west of Montrose and Olathe are especially vulnerable to ORV-related impacts.

**Impacts from Acquisition of Access.** Acquiring public access to any of the 15 identified areas would increase the potential for illegal disturbance of cultural sites in those areas.

### CUMULATIVE IMPACTS ON CULTURAL RESOURCES

Cultural resources would be protected from activities on public land that require use authorizations but would remain susceptible to vandalism and theft. An exception would be in the Gunnison Gorge SRMA where active management would increase the longevity of significant sites through stabilization and interpretation. Vandals and relic hunters would have easy access to 92 percent of the planning area which would be managed as open to ORV use. Research would continue to be random inventories and salvage efforts performed in response to project proposals rather than systematic research.

## IMPACTS ON VISUAL RESOURCES

### IMPACTS FROM PROPOSED MANAGEMENT ACTIONS

**Impacts from Visual Resources Management.** Table 4-2 lists the acres of land in each VRM classification.

Table 4-2

### ACRES IN EACH VRM CLASSIFICATION: CONTINUATION OF CURRENT MANAGEMENT ALTERNATIVE

VRM CLASS	ACRES	PERCENTAGE OF PLANNING AREA
I	80	0
II	64,800	13
III	46,800	10
IV	371,617	77
TOTALS	483,077	100

## CURRENT MANAGEMENT IMPACTS

**Impacts from Mineral Resources Management.** Mineral withdrawals in the Gunnison Gorge, Fruitland Mesa, and lower Gunnison River areas would provide the optimum protection for visual resources on 59,250 acres. Mineral development in the remainder of the planning area would be anticipated to alter landscape characteristics within a few localized viewsheds.

**Impacts from Wildlife Habitat and Livestock Grazing Management.** Major vegetation treatments would alter landscape characteristics.

**Impacts from Forest Management.** Forest and woodland product harvests would alter landscape characteristics in areas managed for harvest.

**Impacts from Recreation Management.** Recreation management would maintain landscape characteristics and preserve scenic qualities in the Gunnison Gorge area and the Needle Rock ONA.

**Impacts from Off-Road Vehicle Management.** Managing 25,584 acres in the Gunnison Gorge SRMA as open to ORV recreation would result in deterioration of the landscape characteristics of the area. Open ORV use designations on 92 percent of the planning area would result in localized modifications of scenic quality.

**Impacts from Disposal of Public Lands.** Disposal of a 40-acre tract adjacent to Colorado Highway 62 and within one mile of the community of Ridgway could result in the loss of a significant scenic overlook within a VRM Class II area.

### *CUMULATIVE IMPACTS ON VISUAL RESOURCES*

Designating Needle Rock ONA as VRM Class I and 13 percent of the planning area as VRM Class II would protect highly scenic visual resources in these areas. Designating the remainder of the planning area as VRM Class III or VRM Class IV would maintain the overall visual character of the planning area but would allow for significant visually contrasting projects or disturbances within localized viewsheds.

## IMPACTS ON WILDERNESS

### *IMPACTS FROM PROPOSED MANAGEMENT ACTIONS*

**Impacts from Wilderness Management.** Not designating the Gunnison Gorge WSA as wilderness would allow for the loss of the area's wilderness values. In contrast to wilderness management that protects pristine environments, management under this alternative would restrict impacts in the Gunnison Gorge only if the natural character of the area as a whole was threatened. Outstanding opportunities for solitude would be degraded as more recreation use and impacts on naturalness would be permitted than if the area

were designated as wilderness. Development of proposed hydroelectric project reservoirs could occur that would permanently eliminate existing wilderness values. The contiguous Black Canyon of the Gunnison Wilderness Area would not be expanded. Wilderness protection for the Black Canyon/Gunnison Gorge system as one geologic, ecologic, and physiographic unit would not be achieved.

Not designating the Camel Back WSA and Adobe Badlands WSA as wilderness would prevent the permanent protection of existing wilderness values within these areas, including pristine environments and outstanding opportunities for primitive and unconfined recreation. Mineral and ORV activities would be anticipated to impact wilderness values within the Adobe Badlands WSA over the short-term. Over time, surface-disturbing activities would likely impair the wilderness qualities of both areas.

## IMPACTS ON MAJOR UTILITY DEVELOPMENT

### *IMPACTS FROM PROPOSED MANAGEMENT ACTIONS*

**Impacts from Major Utility Management.** Determining which public lands within the planning area would be available for development of major utility facilities provides utility companies with information necessary to plan and design projects. Managing 96 percent of the planning area (all of the lands identified as needed for future major utility development) as open to development of major utility facilities would allow for a minimum of controls when meeting public utility needs.

**Impacts from Recreation Management.** Managing the canyon portion of the Gunnison Gorge SRMA (21,038 acres) and the Needle Rock ONA (80 acres) as closed to development of major utility facilities would have a negligible impact as these lands are not identified as needed for future major utility development.

### *CUMULATIVE IMPACTS ON MAJOR UTILITY DEVELOPMENT*

All lands identified as needed for future major utility development would be available to accommodate public utility needs.

## IMPACTS ON ACCESS

### *IMPACTS FROM PROPOSED MANAGEMENT ACTIONS*

**Impacts from Acquisition of Access.** Acquiring road and trail access into the 15 identified areas would improve administration capabilities and allow for public use of these public lands.

## CHAPTER FOUR

### IMPACTS ON ECONOMIC RESOURCES

#### *IMPACTS FROM PROPOSED MANAGEMENT ACTIONS*

**Impacts from Coal Management.** Present and future demands for coal in Delta and Gunnison counties, with market values ranging from \$31 million to \$103 million annually (1984 values), would be met over the life of the plan. Meeting coal demands would have a corresponding positive impact on generation of local incomes and royalties paid to federal and state governments.

**Impacts from Locatable Minerals Management.** Economic benefits associated with the unknown mineral potential on 59,250 acres of withdrawn lands would not be achieved.

**Impacts from Soils and Water Resources Management.** Projects on 2,370 acres of the Elephant Skin Wash area would contribute to lower water treatment costs downstream. During the life of the plan, the projected reduction in salinity of 1,434 to 2,209 tons would serve to lower salinity costs in the Colorado River Basin by \$83,172 to \$128,122. The local economy would benefit from slightly increased soil productivity and reduced costs for less frequent removal of reservoir sedimentation.

**Impacts from Livestock Grazing Management.** Current trends and conditions associated with management of 39,000 AUMs, valued at \$296,400 (1985 value), would continue. No net increases or decreases in AUMs would occur.

**Impacts from Forest Management.** The sale of forest and woodland products would produce \$27,196 in federal revenues annually. These revenues would be \$7,950 more than the average annual revenues since 1981. Local employment and income would be supported to the extent that timber and woodland harvests would be cut by local commercial cutters and sold locally. The sale of 2,000 cords of fuelwood annually would offset local residential heating costs.

**Impacts from Acquisition of Non-Federal Lands.** If private landowners are willing to sell 2,200 acres of land to the BLM, the revenue infusion into the local economy could amount to between \$660,000 and \$1.32 million (based on a \$300 to \$600 value per acre). These revenues, however, are less than one percent of the income within the planning area and are not significant. This infusion assumes that the revenues involved would remain in the local economy.

#### *CUMULATIVE IMPACTS ON ECONOMIC RESOURCES*

The cumulative impact on the local economy is likely to be beneficial but not large. The long-term market demand for coal is likely to remain depressed. Recreational and general tourist activities should continue to increase in visitor days and associated revenue.

### IMPACTS OF THE PRODUCTION ALTERNATIVE

#### IMPACTS ON AIR QUALITY

##### *IMPACTS FROM PROPOSED MANAGEMENT ACTIONS*

**Impacts from Air Quality Management.** Air pollution emissions from primary sources would be minimized through enforcement of applicable policies, regulations, and statutes.

**Impacts from Wildlife Habitat and Livestock Grazing Management.** Short-term localized impacts on air quality would result from vegetation manipulation practices. These minor impacts would be dispersed throughout the planning area.

**Impacts from Off-Road Vehicle Management.** Managing 90 percent of the planning area as open to ORV use for all or portions of the year would result in increased fugitive dust emissions due to vehicle-caused soil erosion. This impact could reach significant levels in adobe soil areas as the demand for ORV recreation increase.

##### *CUMULATIVE IMPACTS ON AIR QUALITY*

Increased levels of air pollution are anticipated from regional growth and development. No land-use allocations specified in this alternative would have significant long-term effects on air quality.

#### IMPACTS ON COAL

##### *IMPACTS FROM PROPOSED MANAGEMENT ACTIONS*

**Impacts from Coal Management.** Allowing the continued development on 26,663 acres of existing coal leases and identifying 83,334 acres of federal coal estate as acceptable for further coal leasing consideration could permit leasing and mining of up to 5,730 million tons of in-place coal. In addition, there are 1,756 acres of federal coal reserves (101 million tons) under private surface and bounded by the Gunnison National Forest.

## PRODUCTION ALTERNATIVE IMPACTS

The possible leasing of up to 5,730 million tons of coal would exceed coal demand over the life of this plan as the 1985 coal production from Delta and Gunnison counties was 2.2 million tons and optimistic annual coal production forecasts for this area range from 4.5 to 7.35 million tons for the years 1990 to 2000. However, any increase in available coal would increase coal leasing opportunities for coal developers.

**Impacts from Oil and Gas Management.** Leasing and subsequent development of oil and gas in the same areas identified as acceptable for further coal leasing consideration could reduce the amount of coal available for mining. This reduction would depend on the scope and timing of development of both resources and the amount of coal determined necessary to be left as pillars to protect oil and gas wells. No projections have been made on coal losses due to oil and gas well protection. However, there could be a conflict if the amount of coal required to be left in-place would make the area uneconomical to mine.

### IMPACTS ON OIL AND GAS

#### IMPACTS FROM PROPOSED MANAGEMENT ACTIONS

**Impacts from Oil and Gas Management.** Table 4-3 lists the acres of federal oil and gas estate in each leasing category. Managing 706,654 acres with only standard lease terms would allow for exploration and development with few restrictions.

Table 4-3

LAND IN EACH  
OIL AND GAS LEASING CATEGORY:  
PRODUCTION ALTERNATIVE

LEASE CATEGORY	ACRES
No leasing	0
Standard lease terms	706,654
Leasing with stipulations No surface occupancy (NSO)	80

**Impacts from Coal Management.** Coal mining could result in delays in drilling schedules, higher drilling and development costs, and requirements for use of special techniques or alternate drilling sites. Coal mining could damage existing wells and could remove or reduce gas

resources if potential gas producing zones were located within mineable coal beds.

**Impacts from Recreation Management.** Managing the 80-acre Needle Rock ONA with a no surface occupancy stipulation would result in higher drilling and development costs as directional drilling from off-site locations would be required.

#### CUMULATIVE IMPACTS ON OIL AND GAS

All federal oil and gas estate would be available for leasing. Managing 80 acres which have a low to moderate favorability for oil and gas production with a no surface occupancy stipulation would not be a significant impact to oil and gas development since the tract is small and there would be 706,654 acres of oil and gas estate available for leasing with standard lease terms.

### IMPACTS ON LOCATABLE MINERALS

#### IMPACTS FROM PROPOSED MANAGEMENT ACTIONS

**Impacts from Locatable Minerals Management.** Identifying 675,142 acres of federal mineral estate as open to entry and location would make this acreage available for exploration and development under the general mining laws. Having no lands within the planning area under mineral withdrawals would maximize the potential for mineral production.

### IMPACTS ON MINERAL MATERIALS

#### IMPACTS FROM PROPOSED MANAGEMENT ACTIONS

**Impacts from Mineral Materials Management.** Identifying 480,945 acres as open to disposal of mineral materials would make the resource available to the public and government entities on all but 80 acres of the planning area. Continuing to close 80 acres to disposal of mineral materials would have a negligible impact as there are no high-value mineral materials in this area and numerous alternative sites are available elsewhere in the planning area.

### IMPACTS ON SOILS

#### IMPACTS FROM PROPOSED MANAGEMENT ACTIONS

**Impacts from Soils Management.** Minimizing soil disturbance on all surface-disturbing activities would decrease potential losses of soil productivity. Maintenance of existing erosion control projects and development of both in-channel structures and land treatments would reduce long-term annual erosion rates by one to two tons per acre on an estimated 2,000 acres.

## CHAPTER FOUR

**Impacts from Mineral Resources Management.** Surface-disturbing activities would decrease soil productivity over the short-term through soil compaction, erosion, mixing of soil horizons, and reduced soil moisture retention capabilities. Coal development could result in loss of soil productivity on less than 1,000 acres, including loss from soil slumping and mud flows on steep slopes. Development of oil and gas leases, locatable minerals, and mineral materials on 69,414 acres of highly erodible soils during critical soil moisture periods (March 1 through May 31) would result in long-term decreases in soil productivity. Accidental fluid discharges during drilling operations could also contaminate soils.

**Impacts from Wildlife Habitat and Livestock Grazing Management.** Intensively managing 353,068 acres of "I" category grazing allotments would reduce erosion rates and soil compaction in these areas over the long-term if AMP objectives to increase ground cover are achieved. Restricting livestock grazing on 52,700 acres of adobe soils during the spring would reduce compaction and erosion rates on 94 percent of the adobe soils determined to be highly susceptible to disturbance. Short-term erosion would increase by one to ten times present levels on vegetation treatments designed to increase livestock and wildlife forage. Soil productivity would surpass present levels over the long-term if treatments increase basal ground cover.

**Impacts from Forest Management.** Road construction and harvesting practices on commercial forest lands and woodlands would increase erosion rates and soil compaction over the short-term. Erosion rates would stabilize and improve over the long-term as mitigation is applied and regeneration occurs.

**Impacts from Off-Road Vehicle Management.** Managing 90 percent of the planning area as open to ORV use for all or portions of the year would allow for decreased soil productivity as soils are disturbed and vegetation is trampled. Soil disturbance would be greatest on 41,959 acres of highly erodible soils.

**Impacts from Fire Management.** Planned and natural prescribed burning on approximately 168,333 acres would increase erosion rates over the short-term. Erosion rates in these areas would decrease over the long-term due to improved ground cover and increased growth of soil-protective grasses and forbs.

### *CUMULATIVE IMPACTS ON SOILS*

Mineral activities, forest and woodland harvests, and ORV use would decrease soil productivity within the planning area. These impacts would be greatest from ORV activities on 41,959 acres of highly erodible soils. Seasonal restrictions on livestock grazing on 52,700 acres, prescribed fire management on 168,333 acres, and erosion control

projects would partially mitigate these impacts. Overall, the net loss of soil productivity would be anticipated to be slight.

## IMPACTS ON WATER RESOURCES

### *IMPACTS FROM PROPOSED MANAGEMENT ACTIONS*

**Impacts from Water Resources Management.** Development of in-channel structures and land treatment projects on selected lands throughout most of the planning area would reduce sediment yields by 75,846 to 151,708 tons over the life of the plan (10 to 12 years). Salinity contributions during the same period would be reduced by as much as 2,274 to 4,549 tons.

**Impacts from Coal Management.** Coal leasing and development would result in increased sediment yields from surface-disturbing activities such as road construction and facility development. Mine water discharges and spoil-pile runoff could increase salt levels in local surface water systems. Overburden fracturing and subsidence from underground mining could result in losses of ground water quantity and quality. Loss of either surface or ground water would impact adjudicated water rights and diminish local domestic and agricultural water supplies.

**Impacts from Oil, Gas, and Geothermal Resources Management.** Identifying 706,734 acres as acceptable for oil and gas leasing could result in impacts to both surface and ground water. Sediment yield increases would be expected from new roads and drilling pads. The result of no operating restrictions during the critical wet soil period (March 1 through May 31) on 69,414 acres of highly erodible and saline soils would be significant increases in salinity and sediment yields over the long-term. Accidental fluid discharges during drilling operations could degrade surface water quality. Drilling could also cause aquifer mixing resulting in ground water degradation.

**Impacts from Locatable Minerals Management.** Identifying the entire planning area as open to mineral entry and location would adversely impact water resources. Sediment yields would increase due to construction of roads and mine facilities and from mining techniques. These impacts would be greatest from placer mining operations. Surface water could be degraded by runoff from spoil-piles and mine water discharges. Drilling and underground mining could cause aquifer mixing resulting in ground water degradation.

**Impacts from Mineral Materials Management.** Managing all but 80 acres of the planning area as open to disposal of mineral materials would adversely impact water resources. Road construction and extraction of mineral materials would increase sediment and salt loads in local surface waters. These sediment and salt increases would be most pronounced from mineral material activities on 69,414

## PRODUCTION ALTERNATIVE IMPACTS

acres of easily eroded soils during critical wet soil periods (March 1 through May 31).

Mineral material operations in close proximity to perennial water courses would have the potential of destabilizing and altering natural stream channels and disturbing the beneficial values of floodplains. These impacts could result in the alteration of water tables and surface water flows, and could increase the flood destruction potential.

**Impacts from Riparian Zone and Wildlife Habitat Management.** Managing riparian zones throughout the planning area to maintain present conditions would not contribute to any improvement of water quality and would promote continued degradation of water quality in those riparian areas presently in poor condition. Aquatic habitat projects implemented to improve streambank cover and reduce bank erosion would result in some water quality improvement. Degradation of water quality would result in areas where mining and mineral material operations occur if total mitigation of impacts to riparian zones is not possible.

**Impacts from Livestock Grazing Management.** Intensively managing 353,068 acres of "I" category grazing allotments would result in lower sediment yields if AMP objectives to increase ground cover are achieved. Sediment yields are not expected to change on 124,192 acres that are not within intensively managed allotments. Short-term sediment yield increases would be expected from vegetation treatments. Permitting grazing from March 1 through March 20 and forage utilization levels greater than 35 percent on 22,323 acres of easily eroded and highly saline soils would result in sediment and salinity yields far above normal. However, restricting grazing on 27,455 acres of adobe soils from March 20 to range readiness would partially mitigate this impact.

**Impacts from Forest Management.** Road construction and harvesting practices on commercial forest lands and woodlands would result in sediment yield increases. Sediment yields would decrease over time if harvests result in increased basal ground cover.

**Impacts from Off-Road Vehicle Management.** Managing 90 percent of the planning area as open to ORV use for all or portions of the year would allow for increased sediment loads as soils are disturbed and vegetation is trampled. Water quality deterioration would be greatest from ORV use on 41,959 acres of highly erodible and saline soils.

**Impacts from Major Utility Development.** Managing 449,597 acres as open to development of major utility facilities would allow for increased sediment loads due to construction and maintenance activities. Water quality deterioration would be greatest at stream channel crossings

and during wet soil periods (March 1 through May 31) on 69,414 acres of highly erodible and saline soils.

**Impacts from Fire Management.** Management for planned and natural prescribed burning on 168,333 acres would allow for vegetation type conversion from pinyon-juniper woodlands to a more watershed-protective grass and forb plant community. Fire suppression activities (fire lines, ORV use) could decrease watershed productivity by removing protective vegetation and increasing erosion and sedimentation. The overall net deterioration in watershed conditions would depend on site-specific variables.

### *CUMULATIVE IMPACTS ON WATER RESOURCES*

Mineral activities, forest and woodland product harvesting, livestock grazing, and ORV use would result in increased sedimentation and salinization of water resources within the planning area. These impacts would be greatest from activities on 69,414 acres of highly erodible and saline soils. Seasonal restrictions on livestock grazing (27,455 acres), prescribed fire management (168,333 acres), and watershed projects would partially mitigate these impacts. Overall, the net deterioration in local water resources would be slight.

### IMPACTS ON RIPARIAN ZONES

#### *IMPACTS FROM PROPOSED MANAGEMENT ACTIONS*

**Impacts from Riparian Zone Management.** Limited management of riparian zones would maintain current condition and trend. Only limited and isolated improvement would be achieved.

**Impacts from Mineral Resources Management.** Approximately 380 acres of riparian zones would be open to mineral exploration if withdrawals are lifted. Road construction, facility development, dredging operations, and other surface-disturbing activities in riparian zones would remove riparian vegetation, compact the soil, and could redirect subsurface water.

**Impacts from Soils and Water Resources Management.** Impoundments created to control erosion, sedimentation, and salinity would improve conditions necessary for establishment of riparian vegetation. This could potentially increase riparian zones by 100 to 300 acres over the long-term.

**Impacts from Wildlife Habitat Management.** Revising the Gunnison Forks HMP to include objectives for riparian vegetation would allow management to alter the current downward trend on 35 acres and improve the area's vegetation condition. In-channel structures designed to improve aquatic habitat could stabilize or improve the availability of subsurface water.

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**Impacts from Livestock Grazing Management.** Grazing systems and improved distribution on 4,368 acres of riparian zones would slightly increase vegetation density and diversity.

**Impacts from Forest Management.** Road and facility construction and other surface-disturbing activities would remove riparian vegetation and could redirect subsurface water. It is estimated that less than 25 acres of riparian vegetation would be degraded over the next ten years.

**Impacts from Recreation Management.** Intensifying recreational use in the Gunnison Gorge would destroy riparian vegetation on approximately 20 acres through camping, trampling, and soil compaction in the limited camping areas along the river. Excluding vehicle access to the river in the Gunnison Forks HMP area would protect existing riparian vegetation from further destruction and would greatly improve those areas in poor condition.

**Impacts from Off-Road Vehicle Management.** Permitting ORV use in riparian zones would destroy vegetation, create severe ruts, and redirect subsurface water. Riparian acreage impacted by ORV use is expected to increase over the next ten years if no controls are implemented. Closing and restricting vehicle use to designated roads and trails on 50,000 acres would improve the trend on these areas and promote rehabilitation of riparian vegetation. Those areas left open to ORV use would continue to experience vegetation destruction, rutting, and loss of stability.

**Impacts from Major Utility Development.** Road construction, clearings for powerline pads, and pipelines would remove riparian vegetation over the short-term. Limited acreage could be impacted over the long-term.

### *CUMULATIVE IMPACTS ON RIPARIAN ZONES*

The improvement in riparian vegetation due to management of livestock grazing, wildlife habitat, and soils and water resources would be offset by increased destruction of riparian vegetation from road and facility construction, ORV use, and clearings. The net result would be a slight decline in the quality and quantity of riparian zones.

## **IMPACTS ON THREATENED AND ENDANGERED SPECIES**

### *IMPACTS FROM PROPOSED MANAGEMENT ACTIONS*

**Impacts from Threatened and Endangered Species Management.** Requiring clearances for all surface-disturbing activities would protect threatened, endangered, or candidate species and their habitat. These pre-disturbance inventories would add substantially to the data base for these species. Some inadvertent destruction of individual plants would still occur. The unique plant associations in Escalante Canyon

and the important plant communities east of Montrose would not be protected which could lead to a loss of scientific information and research potential.

**Impacts from Mineral Resources Management.** Removing the no surface occupancy stipulation on 140 acres of potential threatened and endangered species habitat would increase the probability of inadvertent destruction of threatened and endangered plants (the Uinta Basin hookless cactus, the Grand Junction milkvetch, and the Delta lomatium). Possible disturbance could affect 10,327 acres of potential endangered, threatened, candidate, and sensitive plant species habitat. Lifting mineral withdrawals within the Gunnison Gorge and on the lower Gunnison River and allowing surface-disturbing activities would reduce the value of wintering bald eagle habitat (17,880 acres), peregrine falcon hunting habitat (36,506 acres), and river otter habitat (13 miles). Some wintering bald eagles would be displaced. Waterfowl populations utilizing the area would be significantly lessened thus reducing the primary prey base for raptors.

**Impacts from Soils and Water Resources Management.** In-channel structures and land treatment projects would be slightly beneficial to bald eagles and peregrine falcons. Impoundments and resultant increases in vegetation cover would improve habitats of these raptors' prey base.

**Impacts from Wildlife Habitat Management.** Managing 5,572 acres in the inner Gunnison Gorge as bighorn sheep habitat would protect habitat values for peregrine falcons and wintering bald eagles. River otter habitat would also be protected from excessive destruction.

**Impacts from Livestock Grazing Management.** Livestock trampling may cause some localized disturbance and/or destruction of individual threatened and endangered plants.

**Impacts from Recreation Management.** Increased whitewater boating on the Gunnison River could destroy some of the riparian vegetation needed by river otters. This could lead to reductions in or possible elimination of river otter populations. Peregrine falcon habitat could also be affected by increased recreational activity in the Gunnison Gorge. Some of the falcons' present hunting grounds could be eliminated due to human disturbance and a reduced prey base.

**Impacts from Off-Road Vehicle Management.** Restricting vehicle use to designated roads and trails in the Escalante Canyon area would reduce the potential for degradation of the unique plant associations. Areas designated as open to ORV use would be vulnerable to some disturbance of wintering bald eagles and some additional loss and inadvertent destruction of threatened and endangered plant species and their habitat.

## PRODUCTION ALTERNATIVE IMPACTS

**Impacts from Major Utility Development.** Allowing large powerlines to cross the Gunnison Gorge would result in some wire strike mortality of bald eagles and peregrine falcons. Maintenance of major utilities during critical seasons would disturb wintering bald eagles and could result in short-term displacement of individuals from suitable hunting habitat.

**Impacts from Disposal of Public Lands.** Disposing of 3,890 acres of Mancos shale could reduce management of potential habitat for Delta lomatium, Uinta Basin hookless cactus, Montrose penstemon, and clay-loving wild buckwheat. Known populations of Delta lomatium would be lost from a 360-acre tract in T. 15 S., R. 92 W., Sec. 6, and probable populations of clay-loving wild buckwheat would be lost from 360 acres in T. 48 N., R. 9 W., Sec. 11, and T. 48 N., R. 8 W., Sec. 7. Habitat suitable for and used by whooping cranes and greater sandhill cranes would be lost if disposal of public lands around the Fruitgrowers, Crawford, and Gould reservoirs occurs.

### *CUMULATIVE IMPACTS ON THREATENED AND ENDANGERED SPECIES*

The loss of individual threatened and endangered plants would be accelerated, due primarily to increased mineral exploration in areas currently withdrawn and to disposal of public lands that provide potential habitat. Increased recreational use and mineral exploration in the Gunnison Gorge could decrease habitat suitable for bald eagles, peregrine falcons, and river otters. The population levels of these species would not change significantly.

## IMPACTS ON TERRESTRIAL WILDLIFE HABITAT

### *IMPACTS FROM PROPOSED MANAGEMENT ACTIONS*

**Impacts from Wildlife Habitat Management.** Forage allocations for big game species on public land would meet both short-term and long-term demands. Some localized shortages could occur, primarily in the North Fork area and on the southern end of the Uncompahgre Plateau. Habitat improvement projects would improve game and non-game wildlife distribution throughout the area. Management of bighorn sheep habitat in the Gunnison Gorge area would allow the herd population to reach 150 animals.

**Impacts from Mineral Resources Management.** Road and portal construction and other surface-disturbing activities associated with mineral development would reduce crucial deer and elk winter range in the North Fork area by 500 acres. Elk calving areas would be reduced by 1,000 acres. Game and non-game vehicle mortality would increase. Overall, a loss of 200 deer and 100 elk would be expected.

Mineral activity in the Gunnison Gorge area would increase stress on bighorn sheep, resulting in reduced bodyweight and increased fetal mortality and susceptibility to disease.

Raptor hunting habitat and some nesting areas would be lost. Lifting mineral withdrawals on 61,270 acres of habitat would increase surface disturbance. Mineral development in waterfowl nesting habitat would hinder successful nesting and could reduce reproduction. Habitat for other birds, including Lewis' woodpeckers, western bluebirds, and Scott's orioles, would possibly be reduced due to coal development.

**Impacts from Soils and Water Resources Management.** In-channel structures and resultant impoundments would provide habitat for waterfowl, chukars, mourning doves, mule deer, and non-game species.

**Impacts from Livestock Grazing Management.** Development of grazing systems, land treatment projects, and improved livestock management practices would improve forage conditions, reduce competition between livestock and big game, and improve distribution of most big game species. Restrictions on additional forage allocations for wildlife in the Camel Back area would increase competition for forage between livestock and deer, elk, and bighorn sheep, and possibly result in a smaller bighorn herd. Land treatment projects designed to reduce sagebrush cover to less than 20 percent would eliminate present and potential sage grouse habitat in the Simms Mesa and Green Mountain areas.

**Impacts from Forest Management.** Woodland management on 10,993 acres would provide temporary openings, creating more edge-effect and encouraging greater species diversity. Woodland management in the Billy Creek area would reduce present and future big game forage, forcing more animals onto adjacent DOW and private lands. Commercial forest management in the Storm King area during the spring could curtail use of the area as elk calving grounds.

**Impacts from Recreation Management.** Increased recreational use in the Gunnison Gorge would increase stress on all wildlife species. Bighorn sheep would have greater difficulty obtaining water, and raptors would be displaced from their hunting grounds.

**Impacts from Off-Road Vehicle Management.** Seasonal restrictions on ORV use in crucial deer and elk winter range would reduce stress on wintering big game, reduce fetal mortality and poaching losses, and permit wildlife use throughout available habitat. Restricting vehicle use to designated roads and trails on 4,984 acres would preserve habitat for big game, non-game, and upland game species.

## CHAPTER FOUR

**Impacts from Major Utility Development.** Confining development of major utility facilities in the North Fork area to existing corridors along major roads would limit disturbance and stress on all wildlife species.

**Impacts from Disposal of Public Lands.** Disposal of 10,387 acres of crucial deer and elk winter range and an additional 2,054 acres of non-crucial winter range would result in the loss of habitat for 100 elk and 50 deer and would increase big game pressure on adjacent private lands. Disposing of 640 acres of summer deer and elk habitat on Baldy Peak and 1,763 acres in the High Park area could cause displacement of these animals. Habitat for band-tailed pigeons, Coopers hawks, goshawks, flammulated owls, and other non-game species could be affected. Disposal of 1,364 acres of antelope range would result in an approximate one percent reduction in herd size. Disposal of 600 acres of waterfowl and shorebird habitat could affect nesting and migrating populations. Disposal of tracts providing prairie dog habitat potential occurrences of burrowing owls.

**Impacts from Acquisition of Non-Federal Lands.** Acquisition of non-federal lands and water rights for management as waterfowl habitat would increase waterfowl populations on public lands.

**Impacts from Fire Management.** Natural and planned prescribed fires would reduce closed brush and tree canopies and temporarily improve forage palatability. Habitat for most wildlife species would be improved. Large wildfires would reduce effective screening and thermal cover for mule deer and elk use.

### *CUMULATIVE IMPACTS ON TERRESTRIAL WILDLIFE*

Coal development and mineral exploration and extraction activities on deer and elk winter habitat, timber harvest in elk calving areas, and disposal of public lands in crucial deer and elk winter ranges combined with the loss of habitat on private lands would reduce deer and elk populations below current levels over the long-term. The degree of loss would be dependent upon the rate of development of public resources and private lands.

Increased recreation activity, mining, and major utility development would reduce waterfowl nesting and wintering habitat along the Gunnison River over the long-term.

## IMPACTS ON AQUATIC WILDLIFE HABITAT

### *IMPACTS FROM PROPOSED MANAGEMENT ACTIONS*

**Impacts from Wildlife Habitat Management.** Construction of in-channel structures would improve pool:riffle ratios, stabilize streambanks, increase instream cover, and reduce sedimentation. Approximately 30 miles of aquatic habitat would be improved. Increased emphasis

on aquatic habitat management in the Gunnison Forks area would stabilize the streambank, increase streambank cover, and reduce sedimentation.

**Impacts from Mineral Resources Management.** Construction of roads, pipelines, drill pads, and other surface facilities in or near stream channels would result in increased sedimentation, siltation, water temperatures, channelization, and the loss of organic input and structure. This would severely degrade aquatic habitat quality over the short-term and could result in permanent loss of suitable fish habitat, both at the site and downstream. Approximately 55 miles of aquatic habitat could potentially be altered.

**Impacts from Soils and Water Resources Management.** In-channel structures designed to reduce sedimentation and salinity would improve water quality downstream from the structures.

**Impacts from Riparian Zone Management.** Maintaining current riparian habitat conditions and trend should also maintain the aquatic habitat where the trend is stable in its present condition.

**Impacts from Livestock Grazing Management.** Aquatic habitat on 30 to 35 stream miles would be slightly improved by intensive livestock grazing management. Increased streambank cover and stability would lead to decreased water temperatures and sedimentation in these areas. Over the long-term, the aquatic habitat where the condition is static would remain in its present condition; where trend is down, aquatic habitat would decline. Land treatment projects would increase sedimentation over the short-term but would decrease it over the long-term.

**Impacts from Forest Management.** Road and landing construction, skid trails, stream crossings, and slash disposal areas could cause increased sedimentation, bank degradation, water temperatures, and decreased streambank cover and stability.

**Impacts from Recreation Management.** Within the Gunnison Gorge, overnight camping and picnicking which destroys streambank cover would cause accelerated bank erosion, increased sedimentation, and water quality deterioration.

**Impacts from Off-Road Vehicle Management.** Closing aquatic habitat to ORV use or limiting ORV use to designated roads and trails would protect streambanks from deterioration, maintain existing streambank cover, and reduce sedimentation. Closing the loop road and streambanks in the Gunnison Forks area would greatly improve the quality of the area's aquatic habitat.

**Impacts from Major Utility Development.** Road, pad, and pipeline construction which removes or reduces streambank vegetation would result in significant increases in sedimentation and decreased streambank stability. These impacts would be localized and restricted in scope.

## PRODUCTION ALTERNATIVE IMPACTS

**Impacts from Disposal of Public Lands.** Disposing of public lands in the High Park area would preclude development of a public fishery on several ponds in the area.

### *CUMULATIVE IMPACTS ON AQUATIC WILDLIFE HABITAT*

The increased possibility of mineral activity would lead to reduced aquatic habitat quality in specific areas. Overall aquatic wildlife habitat quality would remain in its present condition.

## IMPACTS ON LIVESTOCK GRAZING

### *IMPACTS FROM PROPOSED MANAGEMENT ACTIONS*

**Impacts from Livestock Grazing Management.** Allowing livestock use on 19,795 acres which are presently unallotted would increase total forage allocations by an estimated 1,570 AUMs. A total of 46,279 AUMs would be available annually for livestock use by 1996. Additional forage would become available on 9,201 acres of adobe soils where livestock use would be eliminated from March 20 to range readiness.

**Impacts from Soils and Water Resources Management.** In-channel structures and land treatment projects designed to reduce erosion and salinity would improve livestock distribution and increase available forage.

**Impacts from Wildlife Habitat Management.** Maintaining existing land treatment projects would improve livestock distribution and would enhance maintenance of existing livestock forage allocations.

**Impacts from Forest Management.** Forage available for livestock grazing use would increase in most areas due to commercial forest and woodland harvests. Improved access and thinning would result in improved livestock distribution.

**Impacts from Off-Road Vehicle Management.** Closing the area to ORV use and restricting vehicle use to designated roads and trails would lessen destruction of livestock forage and would reduce harassment of livestock and damage to livestock facilities.

**Impacts from Disposal of Public Lands.** Disposing of 19,248 acres of public land currently grazed by livestock would eliminate a total of 1,094 AUMs on seven "M" category, one "I" category, and 32 "C" category grazing allotments, and would reduce livestock allocations by a total of 512 AUMs on eight "M" category, 13 "I" category, and eight "C" category grazing allotments.

**Impacts from Acquisition of Access.** Acquisition of public access would improve administration of the livestock grazing program but could result in increased harassment of livestock and vandalism of livestock facilities.

**Impacts from Fire Management.** Available forage and species diversity would improve on 239,423 acres of public land where fires meeting pre-determined prescriptions would be allowed. Fires could cause some damage to livestock facilities (fences, catchments, and corrals).

### *CUMULATIVE IMPACTS ON LIVESTOCK GRAZING*

The short-term increase of 1,570 AUMs through allocation of unallotted lands would be offset by the disposal of public lands currently allocated at 1,606 AUMs. Long-term increases of 5,758 AUMs would provide sufficient forage to meet or exceed expected demand. Livestock distribution and vegetation condition would improve.

## IMPACTS ON FORESTRY

### *IMPACTS FROM PROPOSED MANAGEMENT ACTIONS*

**Impacts from Forest Management.** Intensive management of 7,072 acres of suitable pinyon-juniper woodlands would result in potential annual harvests of 353 cords of fuelwood. Suitable commercial forest lands on 2,001 acres would produce 148 MBF of timber annually.

**Impacts from Mineral Resources Management.** Construction of roads, pads, and portals and other surface-disturbing activities associated with mineral development would reduce suitable woodlands and commercial forest lands to a limited degree. Road construction could improve access into several potential sale areas, thereby reducing costs associated with timber harvest.

**Impacts from Livestock Grazing Management.** Maintaining existing land treatment projects on 23,913 acres and potentially converting an additional 13,430 acres of suitable woodlands to a grass-shrub complex would reduce annual fuelwood harvests by 1,867 cords. This would have a sizeable impact on the forestry program, essentially eliminating fuelwood harvesting.

**Impacts from Disposal of Public Lands.** Disposing of 1,684 acres or about 47 percent, of suitable commercial forest lands predominantly in the High Park area would reduce timber harvests by 125 MBF annually. In addition, disposal would preclude harvest on 1,471 acres of suitable woodlands, thereby decreasing annual production by 74 cords.

**Impacts from Acquisition of Access.** Acquiring access into the 11 identified areas would allow harvests on 877 acres of commercial forest lands and on 2,040 acres of pinyon-juniper woodlands.

## CHAPTER FOUR

**Impacts from Fire Management.** Maximum fire protection in the Storm King, High Park, and North Fork areas would protect 36,800 MBF of commercial timber from possible destruction. Minimum fire protection, as proposed for the woodlands, would result in only minor losses estimated at approximately nine cords per acre burned.

### *CUMULATIVE IMPACTS ON FORESTRY*

Multiple-use needs, primarily livestock grazing, would eliminate sustained yield production on 38,814 acres of suitable woodlands, resulting in an annual loss of 1,914 cords of fuelwood. Harvest on 1,684 acres of suitable commercial forest lands would be precluded, resulting in an annual loss of 125 MBF of timber. Intensive management of forest resources would result in annual harvests of 148 MBF from 2,001 acres of suitable commercial forest lands and 353 cords from 7,072 acres of suitable woodlands.

## IMPACTS ON RECREATION

### *IMPACTS FROM PROPOSED MANAGEMENT ACTIONS*

**Impacts from Recreation Management.** Management of the inner Gunnison Gorge would change from providing recreation opportunities in a setting characterized by a very low human presence and influence to providing recreation opportunities in a setting characterized by moderate human presence and influence. The benefit to recreationists tolerant of this moderate human presence and influence would be low as there are numerous and similar areas elsewhere in the planning area.

Allowing river boating use to a maximum of 20 group encounters per day would adversely affect whitewater boaters and other recreationists seeking an uncrowded and natural river. Only three other raftable whitewater rivers in Colorado, totalling 115 miles, offer these experiences. Recreation opportunities on two of these rivers is limited by demands that far exceed the number of annual use-permits. Recreation use on the other river is limited by a very short boating season.

Excluding the outer portions of the Gunnison Gorge, along with adjacent and similar lands, from the designated SRMA would prevent the long-term protection of high-value recreation opportunities in these areas. Surface-disturbing activities in these excluded areas would degrade scenic views as seen from within the SRMA.

Retaining the ONA designation on Needle Rock and managing 1,895 acres in Escalante Canyon as a scenic area would protect these two valued roaded but predominantly natural recreation settings. Managing 353 acres of the lower Gunnison River for boating opportunities would benefit recreationists by meeting facility and informational needs.

**Impacts from Mineral Resources Management.** Mining coal in the Storm King Peak area would detract from the area's potential for development of downhill skiing. Mine facilities would deteriorate scenic qualities and could occupy lands needed for ski area facilities. Mine-related subsidence could cause the area to be unsuitable for ski-lift placement.

Managing the Needle Rock ONA and Gunnison Gorge area as open to mineral entry and location would allow for potential surface-disturbing exploration and mining. Machinery use and surface disturbances would degrade opportunities to view or study these geologic features.

**Impacts from Wildlife Habitat Management.** Management of the Gunnison Forks HMP area would enhance recreation opportunities for fishing, hunting and wildlife observation. The reintroduction of bighorn sheep in the Gunnison Gorge and the Camel Back areas would enhance opportunities for hunting and observing this big game species.

**Impacts from Off-Road Vehicle Management.** Limiting vehicle use in the Needle Rock ONA to designated roads and trails would protect this scenic area from vehicle-related degradation.

**Impacts from Visual Resources Management.** Protecting the scenic qualities of the Needle Rock ONA (VRM Class I) would ensure the continued availability of this high-quality and desired natural scientific, educational, and recreational setting.

**Impacts from Major Utility Development.** Designating the Needle Rock ONA as closed to development of major utility facilities would protect this high quality scientific, educational, and recreational setting.

### *CUMULATIVE IMPACTS ON RECREATION*

Recreation opportunities within primitive, non-motorized, and natural settings would decrease over time. River-boating opportunities would be managed to allow crowded and trampled campsite conditions. Mineral development in the Gunnison Gorge, Needle Rock ONA, and Storm King Peak areas could degrade or eliminate significant recreation opportunities. Surface-disturbing activities, as emphasized under this alternative, would degrade opportunities for scenic viewing. These negative impacts would be offset slightly by management of the Escalante Canyon scenic area (1,895 acres) and the Gunnison Forks HMP area (140 acres). Both areas, however, are oriented more towards motorized vehicle recreation.

## PRODUCTION ALTERNATIVE IMPACTS

### IMPACTS ON CULTURAL RESOURCES

#### IMPACTS FROM PROPOSED MANAGEMENT ACTIONS

**Impacts from Cultural Resources Management.** Cultural clearances of areas proposed for disturbance would contribute to the cultural data base, decrease cultural site disturbances, and increase potential for discovery of sites eligible for inclusion in the National Register of Historic Places. Class III inventories on 2,738 acres would significantly add to the cultural data base. Scientific and educational values could be lost as no special protective designations are identified for high-value cultural sites within those 2,730 acres. Encroachment by surface-disturbing activities would alter the environmental integrity of high-value cultural site vicinities and possibly require removal of entire cultural sites.

Over time, mineral material activities, vegetation manipulation for livestock forage improvement, livestock watering facility development, ORV activities, and major utility development could possibly encroach on this area (2,738 acres). Scientific data typically gathered in the local site vicinity and necessary for a complete cultural study could be foregone. The values of a naturally-appearing site vicinity for educational and interpretive programs could be lost. Scientific data could be lost as no measures are identified to designate appropriate sites for protection until excavation techniques are developed that would provide a more informative scientific study.

**Impacts from Off-Road Vehicle Management.** Exposed cultural resources would remain vulnerable to vehicle-related damage on 90 percent of the planning area that would be open to ORV activities for all or portions of the year. Cultural resources in these areas would also remain vulnerable to vandalism and illegal artifact collection by individuals using vehicles for easy access and transport of artifacts.

**Impacts from Acquisition of Access.** Acquiring public access to any of the 13 areas identified for access acquisition would increase the potential for illegal disturbance of cultural sites located in those areas.

#### CUMULATIVE IMPACTS ON CULTURAL RESOURCES

Cultural resources would be protected from land uses that require use-authorizations but would remain susceptible to vandalism and theft. Vandals and relic-hunters would have easy access to 90 percent of the planning area managed as open to ORV use. Cultural research would continue to be random inventories and salvage efforts in response to project proposals with the exception of the Class III inventories on 2,738 acres.

### IMPACTS ON VISUAL RESOURCES

#### IMPACTS FROM PROPOSED MANAGEMENT ACTIONS

**Impacts from Visual Resources Management.** Table 4-4 lists the acres of land in each VRM classification.

Table 4-4

ACRES IN EACH VRM CLASSIFICATION:  
PRODUCTION ALTERNATIVE

VRM CLASS	ACRES	PERCENTAGE OF PLANNING AREA
I	80	0
II	64,800	13
III	46,580	10
IV	371,617	77
<b>TOTALS</b>	<b>483,077</b>	<b>100</b>

**Impacts from Mineral Resources Management.** Mineral development in the planning area would be anticipated to alter the landscape characteristics of a few localized viewsheds.

**Impacts from Wildlife Habitat and Livestock Grazing Management.** Major vegetation treatments would alter landscape characteristics.

**Impacts from Forest Management.** Forest and woodland product harvests would alter landscape characteristics of localized viewsheds.

**Impacts from Recreation Management.** Recreation management would maintain landscape characteristics and preserve scenic qualities in the Gunnison Gorge area and the Needle Rock ONA.

**Impacts from Off-Road Vehicle Management.** Managing 90 percent of the planning area as open to ORV use for all or portions of the year would result in localized modifications of scenic quality.

**Impacts from Disposal of Public Lands.** Disposal of a 40-acre tract adjacent to Colorado Highway 62 and within one mile of the community of Ridgway could result in the loss of a scenic overlook site in a VRM Class II area.

## CHAPTER FOUR

### CUMULATIVE IMPACTS ON VISUAL RESOURCES

Designating Needle Rock ONA as VRM Class I and 13 percent of the planning area as VRM Class II would protect highly scenic visual resources in these areas. Designating the remainder of the planning area as VRM Class III or VRM Class IV would maintain the overall visual character of the planning area, but would allow for significant visually contrasting projects or disturbances within localized viewsheds.

### IMPACTS ON WILDERNESS

#### IMPACTS FROM PROPOSED MANAGEMENT ACTIONS

**Impacts from Wilderness Management.** The outstanding wilderness values of the Gunnison Gorge would be lost in the long-term by not designating the area as wilderness. No protective measures would be implemented to protect the pristine canyon environment or the area's opportunities for wilderness recreation. Activities that disturb wilderness settings such as mineral, powerline, and reservoir development would be permitted. Given the objective of this alternative, it is very unlikely that extraordinary rehabilitation efforts or measures designed to restore or maintain the quality of this fragile wilderness environment would be required of surface-disturbing activities.

Permitting recreation use in the Gunnison Gorge of up to four times the amount allowed if the area were designated as wilderness would eliminate opportunities for solitude. Vegetation trampling, litter, and associated impacts would exceed acceptable wilderness levels. The contiguous Black Canyon of the Gunnison Wilderness Area would not be expanded. Wilderness protection for the Black Canyon/Gunnison Gorge system as one geologic, ecologic, and physiographic unit would not be achieved.

Not designating the Camel Back WSA and Adobe Badlands WSA as wilderness would prevent the permanent protection of existing wilderness values within these areas, including pristine environments and outstanding opportunities for primitive and unconfined recreation. Mineral and ORV activities would be anticipated to impact wilderness values within the Adobe Badlands WSA in the short-term. Surface-disturbing activities would likely impair the wilderness quality of both WSAs over time.

### IMPACTS ON MAJOR UTILITY DEVELOPMENT

#### IMPACTS FROM PROPOSED MANAGEMENT ACTIONS

**Impacts from Major Utility Management.** Determining which public lands within the planning area are available for development of major utilities provides utility companies with information necessary to plan and design utility projects. Table 4-5 lists the acres of public land identified as needed and not needed for major utility development under each management classification.

Table 4-5

#### MANAGEMENT OF PUBLIC LANDS FOR MAJOR UTILITY DEVELOPMENT: PRODUCTION ALTERNATIVE

MANAGEMENT CLASSIFICATION FOR DEVELOPMENT OF MAJOR UTILITIES	ACRES OF PUBLIC LAND		TOTALS
	Identified as needed for major utility development	Identified as not needed for major utility development	
Open	121,780	325,128	446,908
Closed	4,016	32,153	36,169
<b>TOTALS</b>	<b>125,796</b>	<b>357,281</b>	<b>483,077</b>

Source: 1980 Western Regional Utility Corridor Study.

## PRODUCTION ALTERNATIVE IMPACTS

### IMPACTS ON ECONOMIC RESOURCES

#### *IMPACTS FROM PROPOSED MANAGEMENT ACTIONS*

**Impacts from Coal Management.** Present and future demands for coal in Delta and Gunnison counties, with market values ranging from \$31 million to \$103 million annually (1984 values), would be met over the life of the plan. Meeting coal demands would have a corresponding positive impact on generation of local incomes and royalties paid to federal and state governments.

**Impacts from Soils and Water Resources Management.** Completing and maintaining the Elephant Skin Wash salinity control project and constructing additional projects would contribute to lower water treatment costs downstream. During the life of the plan, the projected reduction in salinity of 2,274 to 4,549 tons would serve to lower salinity costs in the Colorado River Basin by \$131,892 to \$263,842. The local economy would benefit from slightly increased soil productivity and reduced costs for less frequent removal of reservoir sedimentation.

**Impacts from Livestock Grazing Management.** Current trends and conditions associated with management of 46,279 AUMs, valued at \$351,720 (1985 value), would continue. These AUMs represent an increase of 7,279 AUMs valued at \$55,320, from the existing situation. Any increases in AUMs could result in financial benefits for the affected ranching operations.

**Impacts from Forest Management.** The sale of forest and woodland products would produce about \$10,496 in federal revenues annually. These revenues would be \$8,750 less than the average annual revenues since 1981. Local employment and income would be supported to the extent that timber and woodland harvest would be by local commercial cutters and sold locally. The sale of 320 cords of fuelwood annually would offset local residential heating costs.

#### *CUMULATIVE IMPACTS ON ECONOMIC RESOURCES*

The cumulative long-term impact on the local economy is likely to be beneficial, but not large. The long-term market demand for coal is likely to remain depressed. Some landowners of surface property identified for potential acquisition by the BLM could be affected by recommendations in this alternative. Recreational and general tourist activities should continue to increase visitor days and associated revenue.

The following impacts pertain only to those public lands that are identified in the 1980 Western Regional Utility Corridor Study as being needed for future development of major utility facilities. Closures or restrictions on lands not identified as being needed for utility facilities would be assumed to have a negligible impact on local and regional major utility development.

**Impacts from Coal Management.** Managing 4,016 acres of the Paonia/Somerset coal planning area as closed to major utility development would restrict future development of utility facilities to a 1/2-mile wide corridor adjacent to Colorado Highway 133. This management would result in a low adverse impact to future major utility development as the 1/2-mile wide utility corridor is anticipated to accommodate future demands. Route options available to utility developers, however, would be reduced.

Future major utility development would be precluded on public lands in the Terror Creek drainage. Utility development linking the Montrose and Rifle areas would be restricted as Terror Creek is one of two important utility corridors connecting these areas. These lands are presently utilized for a 115 kv electrical transmission line. Utility companies could not realize the cost/benefits of grouping new facilities with the existing transmission line and would be required to utilize lands adjacent to Colorado Highway 133 or private lands adjacent to the Terror Creek drainage. Both of these available options would likely be less desirable and cost-effective than utilizing public lands within the Terror Creek drainage.

#### *CUMULATIVE IMPACTS ON MAJOR UTILITY DEVELOPMENT*

Major utility right-of-way demands would be met under this alternative as 97 percent of the public lands identified as needed for major utilities would be open to development. Excluding the Terror Creek drainage from utility development would restrict major utilities linking the Montrose and Rifle areas to alternate and possibly less desirable and cost-effective routes.

### IMPACTS ON ACCESS

#### *IMPACTS FROM PROPOSED MANAGEMENT ACTIONS*

**Impacts from Acquisition of Access.** Acquiring access into the 13 areas identified in this alternative would improve administration and allow for public utilization of these public lands. These benefits would not be realized on two areas presently without public access for which no access acquisition proceedings have been identified.

## CHAPTER FOUR

### IMPACTS OF THE CONSERVATION ALTERNATIVE

#### IMPACTS ON AIR QUALITY

##### *IMPACTS FROM PROPOSED MANAGEMENT ACTIONS*

**Impacts from Air Quality Management.** Air pollution emissions from primary sources would be minimized through enforcement of applicable policies, regulations, and statutes.

**Impacts from Wildlife Habitat and Livestock Grazing Management.** Short-term localized impacts on air quality would result from vegetation manipulation practices. These minor impacts would be dispersed throughout the planning area.

**Impacts from Off-Road Vehicle Management.** Limiting ORV use with closures or restrictions throughout most of the planning area would reduce vehicle-caused fugitive dust levels. Allowing ORV use on 23,174 acres of highly erodible soils during critical soil moisture periods would significantly increase fugitive dust levels within these areas as recreational ORV use increases.

##### *CUMULATIVE IMPACTS ON AIR QUALITY*

Increased levels of air pollution are anticipated due to regional growth and development. No land-use allocations specified in this alternative would have significant long-term effects on air quality.

#### IMPACTS ON COAL

##### *IMPACTS FROM PROPOSED MANAGEMENT ACTIONS*

**Impacts from Coal Management.** Allowing the continued development of coal on 26,663 acres of existing coal leases and identifying 82,827 acres of federal coal estate as acceptable for further coal leasing consideration could permit leasing and mining of up to 5,704 million tons of in-place coal. The possible leasing of this coal would exceed coal demand over the life of this plan as the 1985 coal production from Delta and Gunnison counties was 2.2 million tons and optimistic annual coal production forecasts for this area range from 4.5 to 7.35 million tons for the years 1990 to 2000. However, any increase in available coal would increase coal leasing opportunities for coal developers.

**Impacts from Oil and Gas Management.** Leasing and development of oil and gas in the same areas identified as acceptable for further coal leasing consideration could reduce the amount of coal available for mining. This reduction would depend on the scope and timing of development of both resources and the amount of coal

determined necessary to be left as pillars to protect oil and gas wells. No projections have been made on coal losses due to oil and gas well protection. However, there could be a conflict if the amount of coal required to be left in place would make an area uneconomical to mine.

**Impacts from Riparian Zone Management.** Restricting new coal leases on 368 acres in the Jay Creek drainage to no surface disturbance would not be likely to impact coal production levels over the life of the plan. However, coal operators with new leases seeking to mine these restricted areas would experience significant increased production costs since much of this restricted acreage is in preferred locations for surface facilities.

**Impacts from Wildlife Habitat Management.** Restricting new coal leases on 5,920 acres to no surface disturbance would not be likely to impact coal production levels over the life of the plan. However, coal operators with new leases seeking to mine these restricted areas would experience significant increased production costs since much of this restricted acreage is in preferred locations for surface facilities.

**Impacts from Recreation Management.** Restricting new coal leases on 1,520 acres in the Storm King Peak area to no subsidence and no surface disturbance would likely result in up to 87 million tons of in-place coal resources being uneconomical to mine over the long-term. Development of approximately 40 million tons of mineable coal would be precluded to insure that no surface subsidence would occur. Coal operators with new leases would be likely to experience significant increased production costs since surface facilities would have to be located outside the area and on private land. In addition, conflicts would likely arise between coal mine and ski area developers involving both coal truck use of transportation routes and the degradation of scenic viewsheds by mine facilities. Requirements to mitigate these conflicts could significantly increase production costs. The net effect of these production cost increases and the necessity of leaving up to 34 million tons of mineable coal due to surface protection restrictions would likely result in development of these coal reserves being uneconomical.

**Impacts from Wilderness Management.** Designation of the Adobe Badlands WSA as wilderness would preclude leasing of 26 million tons of high to medium development potential coal on 507 acres in the WSA. The long-term negative impact on coal development would be negligible as the coal foregone amounts to less than 1 percent of the high to medium coal reserves in the planning area portions of the Bookcliffs and Paonia/Somerset coal areas. In addition, this coal is not contiguous to existing leases and is not expected to be needed to maintain operations over the long-term.

## CONSERVATION ALTERNATIVE IMPACTS

### CUMULATIVE IMPACTS ON COAL

This alternative is not anticipated to impact coal production levels over the life of the plan. However, 87 million tons of in-place coal in the Storm King Peak area would likely become uneconomical to mine due to restrictive measures designed to protect possible downhill ski area developments. Under this alternative, 26 million tons of in-place federal coal (507 acres) would be unacceptable for further coal leasing consideration, 414 million tons of in-place federal coal (7,808 acres) would be acceptable for coal leasing consideration with stipulations, and 3,903 million tons of in-place federal coal (75,019 acres) would be acceptable for further coal leasing consideration, and development of 1,387 million tons of coal on 26,663 acres of existing coal leases would continue.

### IMPACTS ON OIL AND GAS

#### IMPACTS FROM PROPOSED MANAGEMENT ACTIONS

**Impacts from Oil and Gas Management.** Table 4-6 lists the acres of federal oil and gas estate in each leasing category and Table 4-7 lists the acres under each leasing category by emphasis area. Managing 367,488 acres with standard lease terms would allow for exploration and development with few restrictions. Managing 267,466 acres with seasonal stipulations could result in higher exploration, drilling, and development costs, along with scheduling inconvenience. Managing 22,175 acres with no surface occupancy stipulations would increase drilling costs as directional drilling would be required. Any increased operating costs could lower the potential for production. These acres are within the practical limits of directional

Table 4-6

#### LAND IN EACH OIL AND GAS LEASING CATEGORY: CONSERVATION ALTERNATIVE

LEASE CATEGORY	ACRES
No leasing	41,865
Standard lease terms	367,488
Leasing with stipulations	
No surface occupancy (NSO)	29,915
Seasonal	267,466

drilling. Oil and gas development would be essentially foregone on 7,740 acres that are under no surface occupancy stipulations and beyond the practical limits of directional drilling. These 7,740 acres are determined to have a low to moderate favorability for oil and gas accumulation.

**Impacts from Coal Management.** Coal mining could result in delays in drilling schedules, higher drilling and development costs, and requirements for use of special techniques and alternate drilling sites. Coal mining could damage existing wells and remove or reduce gas resources if potential gas producing zones were located within mineable coal beds.

**Impacts from Soils and Water Resources Management.** Managing 48,281 acres of salinity and erosion control areas with seasonal stipulations (March 1 through May 31) could result in higher exploration, drilling, and development costs, along with scheduling inconvenience. This potentially adverse impact would be most significant in the vicinities of the KGS areas where the potential for future oil and gas activity is the greatest.

**Impacts from Riparian Zone Management.** Managing 6,385 acres of riparian zones with a no surface occupancy stipulation would result in higher drilling and development costs as directional drilling would be required.

**Impacts from Threatened and Endangered Species Management.** Managing 2,272 acres of threatened and endangered species habitat and unique plant association areas with a no surface occupancy stipulation would result in higher drilling and development costs as directional drilling would be required.

**Impacts from Wildlife Habitat Management.** Managing the aquatic corridor areas (12,160 acres) with a no surface occupancy stipulation would result in higher drilling and development costs as directional drilling would be required. Managing 179,353 acres of crucial deer and elk winter range, elk calving areas, antelope range, and waterfowl habitat areas with seasonal stipulations could result in higher exploration, drilling, and development costs, along with scheduling inconvenience. This potentially adverse impact would be most significant in the vicinities of the KGS areas that are under seasonal stipulations to protect antelope and wintering deer and elk and where the potential for future oil and gas activity is the greatest.

**Impacts from Recreation Management.** Managing 17,161 acres of recreation areas with a no surface occupancy stipulation would result in higher drilling and development costs as directional drilling would be required.

**Impacts from Cultural Resources Management.** Managing 2,738 acres of cultural resource areas with a no surface occupancy stipulation would result in higher drilling and development costs as directional drilling would be required.

Table 4-7  
 MANAGEMENT OF OIL AND GAS LEASES BY MANAGEMENT UNIT:  
 CONSERVATION ALTERNATIVE

MANAGEMENT UNIT	ACRES WITH STANDARD LEASE TERMS	ACRES WITH SEASONAL STIPULATIONS						ACRES WITH NO SURFACE OCCUPANCY STIPULATIONS	ACRES CLOSED TO LEASING
		12/1 to 4/30	3/15 to 6/1	3/1 to 5/31	3/15 to 7/1	4/15 to 7/15	6/1 to 6/30		
C-1	—	—	—	—	—	—	—	41,865	
C-2	—	—	—	—	—	—	1,895	—	
C-3	—	—	—	—	—	—	377	—	
C-4	—	—	—	—	—	—	6,385	—	
C-5	—	—	—	—	—	—	2,738	—	
C-6	—	—	—	—	—	—	15,208	—	
C-7	25,584	—	—	—	—	—	80	—	
C-8	8,942	—	—	—	—	—	—	—	
C-9	—	—	—	—	—	—	353	—	
C-10	—	—	—	—	—	—	1,520	—	
C-11	—	16,957	—	21,703	—	—	—	—	
C-12	—	—	—	26,578	—	—	—	—	
C-13	—	102,807	—	—	—	—	—	—	
C-14	—	—	—	—	—	1,712	—	—	
C-15	—	—	—	—	—	—	25,927	—	
C-16	—	5,375	2,560	—	—	—	—	—	
C-17	—	—	—	—	10,707	—	—	—	
C-18	—	14,160	—	—	—	—	12,160	—	
C-19	1,280	—	—	—	—	—	—	—	
C-20	27,522	—	—	—	—	—	—	—	
C-21	31,062	—	—	—	—	—	—	—	
C-22	5,453	—	—	—	—	—	—	—	
C-23	722	—	—	—	—	—	—	—	
C-24	9,113	—	—	—	—	—	—	—	
C-25	35,022	—	—	—	—	—	—	—	
<b>TOTALS</b>	<b>144,700</b>	<b>139,299</b>	<b>2,560</b>	<b>48,281</b>	<b>10,707</b>	<b>1,712</b>	<b>25,927</b>	<b>40,716</b>	<b>41,865</b>

**CONSERVATION ALTERNATIVE IMPACTS**

Table 4-8

**FEDERAL SURFACE/MINERALS  
WITHDRAWN FROM ENTRY TO  
PROTECT EACH LISTED RESOURCE:  
CONSERVATION ALTERNATIVE**

<b>RESOURCE REQUIRING PROTECTIVE WITHDRAWAL</b>	<b>ACRES WITHDRAWN</b>
<b>THREATENED AND ENDANGERED SPECIES</b>	
Escalante Canyon RNA	1,895
Fairview ACEC	377
<b>RECREATION</b>	
Gunnison Gorge SRMA	15,208
Needle Rock ONA	80
<b>CULTURAL RESOURCES</b>	2,738
<b>WILDERNESS</b>	
Adobe Badlands WSA	10,402
Camel Back WSA	10,425
Gunnison Gorge WSA	21,038
<b>OTHER</b>	
Bureau of Reclamation withdrawals	51,438
Public Water Reserves (non-metalliferous minerals)	1,884
<b>TOTAL</b>	<b>115,485</b>

**Impacts from Wilderness Management.** The negative impact of closing the Gunnison Gorge WSA to leasing would be negligible as geologic structures in the area have no favorability for oil and gas accumulation. Closing the Camel Back WSA to leasing would have a low negative impact as geologic structures in the area have a low favorability for oil and gas accumulation.

The negative impact of closing the Adobe Badlands WSA to leasing would be low to moderate as geologic structures in the area have a moderate favorability for oil and gas accumulation. The four oil and gas wells drilled within or adjacent to the WSA were abandoned after no significant amounts of oil or gas were found. A KGS yielding gas is located five miles east of the WSA. Two KGSs, one showing evidence of oil and gas and the other gas, are located within two miles of the WSA's east and west boundaries. These KGSs were designated on the basis of one test well each and are presently closed but available for production (shut-in). Portions of this oil and gas formation are thought to extend into the WSA and have a moderate potential for oil and gas traps.

**CUMULATIVE IMPACTS ON OIL AND GAS**

Not leasing 10,425 acres within the Adobe Badlands WSA would have a low to moderate negative impact on oil and gas development due to the area's close proximity to three KGS areas. Negative impacts from seasonal stipulations on oil and gas activities would be most significant in the salinity control area, antelope range, and crucial deer and elk winter range that are in close proximity to the KGS areas. Seasonal stipulations (267,466 acres) and no surface occupancy stipulations (22,175 acres) could increase exploration and development costs to the point of decreasing production potential throughout the planning area. Production potential would be eliminated on 7,740 acres managed under no surface occupancy stipulations that are beyond the practical limits of directional drilling. Overall, these negative impacts would be rated low to moderate since the entire planning area has a low to moderate favorability for oil and gas production.

**IMPACTS ON LOCATABLE MINERALS**

**IMPACTS FROM PROPOSED MANAGEMENT ACTIONS**

**Impacts from Locatable Minerals Management.** Identifying 576,290 acres as open to mineral entry and location would make this area available for exploration and development under the general mining laws. Managing 115,485 acres as withdrawn from mineral entry and location would eliminate these lands from possible mineral development. Table 4-8 lists the acres of federal surface/minerals proposed for protective withdrawal.

The negative impact of withdrawing the Gunnison Gorge WSA from mineral entry and location would be low to moderate as geologic structures in the area have a moderate favorability for accumulation of locatable minerals. There are no known mineral deposits in the WSA. Approximately 20 lode claims and several prospects which are located within or adjacent to the WSA indicate some mineral development interest in the local area.

The negative impact of withdrawing the Adobe Badlands WSA and Camel Back WSA from mineral entry and location would be low as geologic structures in these areas have a low favorability for accumulation of locatable minerals. There are no locatable mineral deposits or evidence of past mineral development within these areas. The potential for economic discoveries is poor. There has been recent interest in possible placer deposits within the Adobe Badlands WSA,

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but the future of this interest is speculative. Uranium and vanadium mineralization is considered likely within the Camel Back WSA but no significant concentrations were detected during DOE surveys.

Mining claimants with non-valid claims within designated wilderness areas would be adversely affected as development or extraction would be permitted only on mining claims proven to have valid mineral discoveries. In addition, the potential for mineral discoveries on lands unclaimed prior to wilderness designation would be eliminated.

Retaining the withdrawal on the 80-acre Needle Rock ONA would have a low negative impact as there are no known mineral values in the area. Retaining withdrawals on 53,322 acres and withdrawing on additional 20,218 acres would have an unknown impact as little data is available on mineral potentials within these areas. Interest has been expressed in prospecting for placer gold, uranium, and gypsum within the Bureau of Reclamation withdrawals but no deposits have been identified. There are no known mineral values on the other withdrawal areas and little interest has been expressed for mineral explorations in these areas.

Managing the Escalante Canyon RNA (1,895 acres) and the Fairview ACEC (377 acres) as closed to ORV use would result in increased operating costs and inconvenience for mining claimants as plans of operations would be required for all activities except casual use.

### IMPACTS ON MINERAL MATERIALS

#### *IMPACTS FROM PROPOSED MANAGEMENT ACTIONS*

**Impacts from Mineral Materials Management.** Identifying 189,460 acres as open to disposal of mineral materials with no seasonal restrictions would make this resource available, with a minimum of restrictions, to the public and government entities on 39 percent of the planning area. Managing 206,804 acres with seasonal restrictions on disposal activities could result in scheduling inconvenience for operators. The impact of closing 84,761 acres to disposal of mineral materials would be low as there are numerous alternative areas elsewhere in the planning area. In some circumstances, the costs of hauling mineral materials could be increased as closures could increase travel distances to open mineral material locations. Requiring approval of the withdrawing agency for disposal of mineral materials on 98,852 acres could result in the denial of permit applications for the resource on these lands.

Table 4-9 lists the federal surface in each mineral material disposal category by management unit.

### IMPACTS ON SOILS

#### *IMPACTS FROM PROPOSED MANAGEMENT ACTIONS*

**Impacts from Soils Management.** Minimizing soil disturbance from all surface-disturbing activities would decrease potential losses of soil productivity. Intensively managing soils on 26,578 acres (Management Unit C-12) would increase soil productivity and decrease erosion in these areas. Development of in-channel structures and land treatments would reduce the long-term erosion rates by one to two tons per acre annually on 4,000 acres.

**Impacts from Mineral Resources Management.** Surface-disturbing activities would decrease soil productivity through soil compaction, erosion, mixing of soil horizons, and reduced soil moisture retention capabilities. Coal development could result in loss of soil productivity on less than 1,000 acres due to road and facility placement and increased soil slumping and mud flows.

Development of oil and gas leases on 634,954 acres, locatable minerals on 576,290 acres, and mineral materials on 396,264 acres would decrease soil productivity unless rehabilitation efforts are successful. Development of locatable minerals within 61,055 acres of easily eroded soils during critical soil moisture periods (March 1 through May 31) would decrease soil productivity over the long-term. Similar impacts would result from development of oil and gas leases and mineral material areas within 24,412 acres of these soils. Accidental fluid discharges during drilling operations could also contaminate soils.

**Impacts from Water Resources Management.** Seasonal restrictions on surface-disturbing activities and livestock forage utilization limits on 26,578 acres of highly saline soils (Management Unit C-12) would decrease erosion and increase soil productivity within these areas. Developing in-channel structures and land treatments on these acres would further protect soils from erosion.

**Impacts from Wildlife Habitat and Livestock Grazing Management.** Intensively managing 350,796 acres of "I" category grazing allotments would reduce soil compaction and erosion rates over the long-term in these areas if AMP objectives to increase ground cover are achieved. Elimination of grazing on 3,059 acres and restrictions on both forage utilization and spring grazing use on 75,626 acres would increase vegetation cover and decrease long-term annual erosion rates by up to three tons per acre. These restrictions would have the greatest positive impact on 65 percent (44,997 acres) of the soil areas that are highly susceptible to damage. Short-term erosion would increase by one to ten times present levels on vegetation treatments designed to increase wildlife and livestock forage. Soil productivity would surpass present levels over the long-term if treatments increase basal ground cover.

Table 4-9

**FEDERAL SURFACE IN EACH MINERAL MATERIAL DISPOSAL CATEGORY BY PROTECTED RESOURCE:  
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RESOURCE REQUIRING PROTECTIVE CATEGORY	ACRES OPEN	ACRES WITH SEASONAL RESTRICTIONS					ACRES CLOSED
		12/1 to 4/30	3/1 to 5/31	3/15 to 6/1	3/15 to 7/1	6/1 to 6/30	
Federal surface with no restrictions required	189,460	—	—	—	—	—	—
EROSION/SALINITY AREAS	—	—	44,581	—	—	—	—
RIPARIAN AREAS	—	—	—	—	—	—	6,385
T&E SPECIES							
Escalante Canyon RNA	—	—	—	—	—	—	1,895
Fairview ACEC	—	—	—	—	—	—	377
WILDLIFE HABITAT							
Bighorn sheep	—	—	—	—	—	—	3,700
Deer/elk winter range	—	122,807	—	—	—	—	—
Antelope	—	—	—	—	—	25,927	—
Sage grouse	—	—	—	1,382	—	—	—
Waterfowl	—	—	—	—	12,107	—	—
Aquatic habitat	—	—	—	—	—	—	12,160
RECREATION							
Gunnison Gorge SRMA	—	—	—	—	—	—	15,208
Needle Rock ONA	—	—	—	—	—	—	80
Lower Gunnison River SRMA	—	—	—	—	—	—	353
CULTURAL RESOURCES	—	—	—	—	—	—	2,738
WILDERNESS							
Camel Back WSA	—	—	—	—	—	—	10,425
Adobe Badlands WSA	—	—	—	—	—	—	10,402
Gunnison Gorge WSA	—	—	—	—	—	—	21,038
<b>TOTALS</b>	<b>189,460</b>	<b>122,807</b>	<b>44,581</b>	<b>1,382</b>	<b>12,107</b>	<b>25,927</b>	<b>84,761</b>

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**Impacts from Forest Management.** Road construction and harvesting practices on commercial forest lands and woodlands would increase erosion rates and soil compaction over the short-term. Erosion rates would stabilize and improve as mitigation is applied and regeneration occurs over the long-term. Harvest restrictions on 1,263 acres during the wet spring period would reduce impacts on these lands.

**Impacts from Recreation Management.** Managing 34,526 acres for ORV recreation opportunities would result in long-term erosion within these areas. This long-term erosion would be most pronounced on 22,292 acres of soils that are determined to be highly erodible. ORV-derived erosion would increase as more ORV enthusiasts become aware of and utilize these areas.

Construction of trails, ski runs, and other facilities in the Storm King Peak area would increase erosion and compaction of soils within 1,520 acres over the long-term. This development would also have a high potential for causing soil mass-wasting areas (soil slumps and mud flows).

**Impacts from Off-Road Vehicle Management.** Not permitting ORV use on 40 percent of the planning area would protect these areas from ORV-derived soil disturbance and erosion. Managing 31 percent of the planning area as open to ORV use would allow for decreased soil productivity as soils are disturbed and vegetation is trampled. This decrease in soil productivity would be greatest from ORV use on 23,174 acres of highly erodible soils. Seasonal ORV restrictions on 140,881 acres would partially protect these areas from ORV-derived soil disturbance during portions of the critical soil moisture periods when soils are most vulnerable to damage.

**Impacts from Fire Management.** Planned and natural prescribed burning on 168,333 acres would increase erosion rates over the short-term. Erosion rates in these areas would decrease over the long-term due to improved ground cover and increased growth of soil-protective grasses and forbs.

### *CUMULATIVE IMPACTS ON SOILS*

Under this alternative, soil conditions would be anticipated to improve slightly throughout the entire planning area. Intensive management of erosion and salinity areas and grazing allotments would benefit soil conditions within these areas. Eliminating spring grazing and restricting livestock forage utilization to 35 percent on 75,656 acres would be effective in increasing protective ground cover and soil productivity. This management would be especially beneficial on over 40,000 acres of highly erodible soils.

Mineral activities, forest and woodland product harvests, and ORV use would increase soil erosion and losses in soil productivity. These impacts on soils would be most pronounced on 24,000 acres of highly erodible soils where few soil-protective measures would be implemented.

## IMPACTS ON WATER RESOURCES

### *IMPACTS OF PROPOSED MANAGEMENT ACTIONS*

**Impacts from Water Resources Management.** Development of in-channel structures would reduce salt yields by 3,633 to 7,708 tons and sediment yields by 121,141 to 257,000 tons over the life of the plan. Land treatment projects along with restrictions on surface-disturbing activities would provide additional protection for surface water from salinization and sedimentation. In-channel structures would provide some flood control benefits for downstream areas.

**Impacts from Coal Management.** Coal leasing and development would result in increased sediment yields from roads, mine facilities, or other surface-disturbing activities. Mine discharges and spoil-pile runoff could increase salt levels in local surface water systems. Overburden fracturing and subsidence from underground mining could result in loss of ground water quantity and quality. Loss of either surface or ground water could adversely affect adjudicated water rights. These impacts would be less pronounced on 7,813 acres where mining would be restricted by no surface disturbance stipulations.

**Impacts from Oil, Gas, and Geothermal Resources Management.** Identifying 664,869 acres as acceptable for oil and gas leasing could result in impacts on surface and ground water. Construction of roads and drilling pads would increase sediment and salinity yields in local surface waters. These impacts would be most pronounced on 24,412 acres of easily eroded and/or high salinity soils as oil and gas operations would be permitted during the critical wet soil period (March 1 through May 31) when these soils are most vulnerable to damage. Accidental fluid discharges during drilling operations could contaminate surface water. Drilling could also cause aquifer mixing resulting in ground water degradation.

**Impacts from Locatable Minerals Management.** Identifying 85 percent of the planning area as open to mineral entry and location could result in water quality degradation. Road construction and other mine-related disturbance would increase sediment and salinity loads in local surface waters. These impacts would be greatest from placer mining operations. All operations could result in heavy metal contamination from mine water discharges and spoil-pile runoff. Drilling and underground mining could cause aquifer mixing resulting in ground water degradation.

**Impacts from Mineral Materials Management.** Managing 82 percent of the planning area as open to disposal of mineral materials would impact water resources. Road construction and extraction of mineral materials would increase sediment and salt loads in local surface waters. These increased sediment and salt loads would be most

## CONSERVATION ALTERNATIVE IMPACTS

pronounced from mineral material activities on 24,412 acres of easily eroded soils during critical wet soil periods (March 1 through May 31).

Mineral material operations in close proximity to perennial water courses would have the potential of destabilizing and altering natural stream channels and disrupting the beneficial values of floodplains. These impacts could result in the alteration of water tables and surface water flows and could increase flood destruction potential.

**Impacts from Riparian Zone Management.** Managing 6,385 acres of riparian areas to improve vegetation condition and streambank cover would result in reduced sediment yields, streambank erosion, and potential downstream flood damage. Physical and chemical water quality would also be improved.

**Impacts from Wildlife Habitat Management.** Soil disturbances from chainings and other vegetation treatments scattered over 102,807 acres would cause short-term sediment yield increases. Successful land treatments would reduce sediment yields and improve overall erosion conditions over the long-term. Erosion control measures and closing seven miles of roads in the Potter Creek and Dry Fork of Escalante Creek drainages would reduce sediment loads in surface waters on 61,490 acres of aquatic areas.

**Impacts from Livestock Grazing Management.** Intensively managing 350,796 acres as "I" category grazing allotments would reduce sediment yields if AMP objectives to increase ground cover are achieved. Short-term sediment yield increases would occur on vegetation treatment areas from surface disturbances caused by chainings, plowing, and other treatment techniques. Successful land treatments would reduce sediment yields as ground cover increases over time. Sediment and salinity yields would decrease as ground cover increases on 78,685 acres where spring grazing would be eliminated and livestock forage utilization limited to 35 percent. Sediment yields would remain at present levels on 103,930 acres managed as "M" and "C" category grazing allotments.

**Impacts from Forest Management.** Road construction and surface disturbance from harvesting activities on commercial forest lands and woodlands would result in increased sediment yields. Removal of pinyon and juniper trees could result in increased basal ground cover, thereby reducing erosion and sediment yields over the long-term. Seasonal restrictions on harvesting activities during all or part of the wet soil periods on 5,000 acres would protect surface water from the additional sediment yields characteristic of soil disturbance during this time period.

**Impacts from Recreation Management.** Managing 34,526 acres for recreational ORV use would increase the sediment and salt yields from these easily eroded and highly saline soil areas. Allowing ORV use in the Elephant Skin

Wash salinity control project area would shorten the life and effectiveness of this project. Managing 1,520 acres in the Storm King Peak area for possible ski area development would allow for surface disturbance and subsequent sedimentation of surface waters due to construction of roads, facilities, and ski-runs.

**Impacts from Off-Road Vehicle Management.** Not permitting ORV use on 40 percent of the planning area would protect these areas from ORV-derived sedimentation. Managing 31 percent of the planning area as open to ORV use would allow for increased sediment loads as soils are disturbed and vegetation is trampled. Water quality deterioration would be greatest from ORV use on 23,174 acres of highly erodible and saline soils. Seasonal ORV restrictions on 140,881 acres would partially protect these areas from ORV-derived sedimentation during wet soil periods when soils are most vulnerable to damage.

**Impacts from Wilderness Management.** Managing 8,358 acres of highly saline and erodible soils as wilderness would protect these acres from most surface-disturbing activities. Not permitting these activities would decrease saline and sediment yields into local watersheds.

**Impacts from Major Utility Development.** Managing 413,171 acres as open to development of major utility facilities would allow for increased sediment loads due to construction and maintenance activities. Water quality deterioration from these activities would be greatest at stream crossings and during wet soil periods (March 1 through May 31) on 23,563 acres of highly erodible and saline soils. Seasonal restrictions on construction and major maintenance activities would partially protect 37,489 acres of highly erodible and saline soils from disturbance during wet soil periods when these soils are most vulnerable to damage.

**Impacts from Fire Management.** Management for planned and natural prescribed burning on 168,333 acres would allow for vegetation type conversion from pinyon-juniper woodlands to a more watershed-protective grass and forb plant community. Fire suppression activities (fire lines, ORV use) could decrease watershed productivity by removing protective vegetation and increasing erosion and sedimentation. The overall net deterioration of watershed conditions would depend on site-specific variables.

### *CUMULATIVE IMPACTS ON WATER RESOURCES*

Under this alternative, a slight improvement in water resources would be anticipated throughout the entire planning area. Intensive management of salinity and erosion areas, riparian zones, aquatic habitats, and grazing allotments would benefit the hydrologic condition of water courses and improve the chemical and physical properties of surface waters. Intensive management would be especially beneficial on 40,000 acres of highly erodible and saline soils. Elimini-

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nating spring grazing and restricting livestock forage utilization to 35 percent on 78,685 acres would also be effective in improving water quality.

Mineral activities, forest and woodland product harvesting, and ORV use would result in increased sediment and salt yields in portions of the planning area. These increases would be most pronounced on 24,000 acres of highly erodible and saline soils where few watershed-protective measures would be implemented. Managing the Elephant Skin Wash salinity control project area for ORV use would shorten the life and effectiveness of the project.

### IMPACTS ON RIPARIAN ZONES

#### *IMPACTS FROM PROPOSED MANAGEMENT ACTIONS*

**Impacts from Riparian Zone Management.** Intensively managing 6,385 acres of riparian zones would improve vegetation cover, composition, density, and diversity. Overall improvement to fair or good vegetation condition could be expected over the short-term.

**Impacts from Mineral Resources Management.** Withdrawing riparian zones from mineral entry would preclude loss of vegetation due to road and pad construction, placer operations, and disposal of mineral materials. This positive impact would improve riparian conditions.

**Impacts from Soils and Water Resources Management.** Water impoundment projects would improve conditions necessary for establishment of riparian vegetation. This could potentially increase riparian acreage by 300 to 400 acres over the long-term.

**Impacts from Wildlife Habitat Management.** Development of in-channel structures designed to improve aquatic habitat would stabilize riparian vegetation and enhance its quality.

**Impacts from Livestock Grazing Management.** Restricting livestock utilization to 35 percent on 115,000 acres and intensively managing grazing use on 4,368 acres of riparian zones would increase vegetation density, diversity, and stability over the next ten years.

**Impacts from Forest Management.** Road and facility construction and other surface-disturbing activities in riparian zones would remove riparian vegetation. An estimated 60 to 100 acres of riparian vegetation would be degraded over the next ten years.

**Impacts from Recreation Management.** Construction needed for development of the Storm King ski area and damage created by organized ORV activities in the North Delta ORV area would degrade riparian vegetation.

**Impacts from Off-Road Vehicle Management.** Closing 44,000 acres to ORV use and restricting vehicle use to designated roads and trails on another 147,000 acres would

improve vegetation condition and eliminate rutting and soil compaction, resulting in an improving trend in riparian vegetation.

**Impacts from Major Utility Development.** Eliminating riparian zones as possible locations of utility facilities would protect these areas and maintain their present conditions.

#### *CUMULATIVE IMPACTS ON RIPARIAN ZONES*

Direct and indirect intensive management under this alternative would result in improved vegetation conditions on riparian zones.

### IMPACTS ON THREATENED AND ENDANGERED SPECIES

#### *IMPACTS FROM PROPOSED MANAGEMENT ACTIONS*

**Impacts from Threatened and Endangered Species Management.** Designation of 1,895 acres in Escalante Canyon as a Research Natural Area (RNA) would protect the Uinta Basin hookless cactus (threatened), the Grand Junction milkvetch (candidate), the Delta lomatium (sensitive), and three unique plant associations from surface-disturbing activities. Opportunities for research and special studies of the plant associations would be expanded. Designation of 377 acres east of Montrose as an Area of Critical Environmental Concern (ACEC) would fully protect populations and habitats of clay-loving wild buckwheat and Montrose penstemon from surface-disturbing activities.

**Impacts from Mineral Resources Management.** The protective withdrawal on 21,633 acres of threatened and endangered plant species habitat would preclude possible inadvertent destruction due to mineral development activities. The no surface occupancy stipulation on 30,154 acres of threatened and endangered plant species habitat would decrease the probability of accidental destruction of individual plants. Habitat for bald eagles, peregrine falcons, and river otters in the Gunnison Gorge would be preserved.

**Impacts from Soils and Water Resources Management.** In-channel structures and land treatment projects would be slightly beneficial to bald eagles and peregrine falcons. Impoundments and resulting increases in vegetation cover would improve the habitat of these raptors' prey base.

**Impacts from Riparian Zone Management.** Improvement of the riparian zones along Roubideau and Escalante creeks would improve habitat of the peregrine falcon's prey base.

**Impacts from Wildlife Habitat Management.** Revising the Gunnison Forks HMP to include objectives for bald eagle and river otter habitat improvement would enhance species maintenance in this area. Peregrine falcons would be expected to increase their use of the area over the long-

## CONSERVATION ALTERNATIVE IMPACTS

term. Waterfowl habitat improvement and associated land acquisition could provide migrating whooping cranes, long-billed curlews, and white-faced ibis with additional protected habitat and stop-over points.

**Impacts from Livestock Grazing Management.** Some localized disturbance and destruction of individual threatened and endangered plants would occur due to livestock trampling. This disturbance would be precluded on 2,272 acres where livestock grazing is prohibited.

**Impacts from Recreation Management.** Development of the North Delta ORV SRMA would seriously accelerate destruction of the Uinta Basin hookless cactus and potential habitat of clay-loving wild buckwheat and Delta lomatium on 8,942 acres. Decreasing river use in the Gunnison Gorge would improve river otter habitat through decreased destruction of riparian vegetation. Bighorn sheep and peregrine falcons would benefit from reduced human disturbance in the gorge.

**Impacts from Off-Road Vehicle Management.** Closing approximately 28,147 acres of potential threatened and endangered plant species habitat to ORV use and restricting vehicle use to designated roads and trails would eliminate potential destruction and damage of the Uinta Basin hookless cactus, spineless hedgehog cactus, Montrose penstemon, Grand Junction milkvetch, and clay-loving wild buckwheat.

**Impacts from Wilderness Management.** Management of 41,865 acres under wilderness guidelines would protect potential habitat of threatened and endangered plant and animal species from any mechanical disturbance. Habitat values would be maintained or improved. There would be a reduction in cactus collecting disturbances in the Camel Back and Adobe Badlands areas.

### *CUMULATIVE IMPACTS ON THREATENED AND ENDANGERED SPECIES*

The research potential and study opportunities of several threatened and endangered species and unique plant associations would be protected with special designations. There would be a loss of 10,000 acres of potential habitat for the Uinta Basin hookless cactus and Delta lomatium due to recreational ORV use.

### **IMPACTS ON TERRESTRIAL WILDLIFE HABITAT**

#### *IMPACTS FROM PROPOSED MANAGEMENT ACTIONS*

**Impacts from Wildlife Habitat Management.** Allocating an additional 200 AUMs to wildlife in the short-term and all future forage to wildlife in the long-term would exceed the DOW's estimated big game forage needs over the life of the plan.

Deer and elk winter range management and land treatment projects would improve distribution, reduce stress, and decrease big game utilization of adjacent private lands. Minimizing disturbance in elk calving areas would reduce fetal mortality and increase calf survival.

Bighorn sheep habitat and herd management in the Gunnison Gorge and Camel Back areas would increase potential populations to over 450 individuals by 1997. Antelope populations and range would be maintained or slightly improved over the next ten years through construction of new water sources and by minimizing disturbance during the kidding season. Eliminating new road construction would reduce harassment and disturbance yearlong.

Sage grouse habitat would be improved and populations would be maintained or slightly increased over the next ten years. Increasing nesting cover, providing nesting structures, developing water impoundments, and minimizing disturbance during the breeding season would double waterfowl production on public lands. These projects would also provide additional habitat for egrets, herons, sandhill cranes, and raptors.

**Impacts from Mineral Resources Management.** Seasonal restrictions and no surface occupancy stipulations on 102,807 acres of crucial deer and elk winter range and no leasing restrictions on 3,700 acres of bighorn sheep habitat would reduce stress on deer, elk, and bighorn sheep, thereby reducing mortality and fetal losses and improving overall condition and health of the herds. Withdrawing 39,602 acres from mineral entry would reduce the potential for habitat destruction and disturbance of all wildlife species. This is particularly important in riparian zones which are utilized by a diversity of wildlife species.

**Impacts from Soils and Water Resources Management.** In-channel structures and impoundments would provide food and habitat for waterfowl, big game and non-game species, and other wildlife. Land treatment projects and increased vegetation cover would improve habitat for all wildlife species. Curtailing surface-disturbing activities from March 1 through May 31 would decrease stress and disturbance of game and non-game wildlife. Restricting forage utilization to 35 percent could result in some herd reductions in isolated areas.

**Impacts from Riparian Zone Management.** Restoring and protecting 6,385 acres of riparian zones would provide additional forage and cover for big game, waterfowl, and non-game birds and animals. The prey base for raptors and other predators would be improved.

**Impacts from Threatened and Endangered Species Management.** Protection afforded by special designations would improve habitat conditions for non-game species.

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**Impacts from Livestock Grazing Management.** Eliminating livestock grazing use on 2,739 acres yearlong and on approximately 54,000 acres during the spring would improve big game forage at a time when food reserves are low and females are pregnant. Improved nutrition may result in heavier birthweights and more successful reproduction.

**Impacts from Forest Management.** Woodland harvests would provide temporary openings in forest stands, increasing edge effect and big game forage. Thermal and hiding cover for cavity nesting birds would be reduced.

**Impacts from Recreation Management.** Restricting river use in the Gunnison Gorge would encourage continued expansion of the bighorn sheep population and prevent some degradation of riparian habitat for non-game species. Encouraging recreational and competitive ORV use in the North Delta area would curtail antelope use of the area, reducing antelope range by 8 percent. ORV use in the area would increase harassment of game and non-game wildlife and would displace prairie dog populations. Construction of the Storm King ski area complex would eliminate useable elk calving habitat and reduce the area's value for mule deer fawning. Ski run clearings would provide valuable habitat for blue grouse broods.

**Impacts from Off-Road Vehicle Management.** Closing 44,137 acres to vehicle use would eliminate disturbances or harassment of wildlife. Restricting vehicle use to designated roads and trails in crucial deer and elk winter range would reduce habitat loss. Seasonal ORV use restrictions in crucial deer and elk winter range would reduce stress on big game species, thereby reducing fetal mortality and losses from poaching, and permitting wildlife utilization of the entire area.

**Impacts from Major Utility Development.** Prohibiting development of utility facilities on 48,828 acres would prevent short-term disturbances and long-term habitat modifications due to road construction and use. Bighorn sheep would greatly benefit from exclusion of utilities in the Camel Back and Gunnison Gorge areas.

**Impacts from Acquisition of Non-Federal Lands.** Acquiring non-federal lands in crucial deer and elk winter range would increase habitat and potential big game populations, and reduce wildlife conflicts and impacts on adjacent private lands. Acquiring non-federal lands and water rights for waterfowl habitat management would increase waterfowl populations on public lands.

**Impacts from Fire Management.** Natural and planned prescribed fires would reduce closed brush and tree canopies, stimulate plant growth and vigor, and temporarily improve forage palatability, resulting in improved habitat for many wildlife species. Large wildfires would reduce effective screening and thermal cover for mule deer and elk use.

### *CUMULATIVE IMPACTS ON TERRESTRIAL WILDLIFE HABITAT*

Crucial deer and elk winter range on 102,807 acres would be improved. Forage would be available for an additional 3,000 mule deer, 100 elk, 20 antelope, and 450 bighorn sheep. Mortality, including fetal losses, would be reduced for all big game species. Small game and non-game populations and habitats would be improved. Sage grouse habitat would be protected and waterfowl habitat would be improved and expanded.

### **IMPACTS ON AQUATIC WILDLIFE HABITAT**

#### *IMPACTS FROM PROPOSED MANAGEMENT ACTIONS*

**Impacts from Wildlife Habitat Management.** Structures placed in Escalante, Cottonwood, Monitor, Potter, and Jay creeks would improve pool:riffle ratios, stabilize streambanks, increase instream cover, and reduce channelization, streambank erosion, and sedimentation. Approximately 30 stream miles of aquatic habitat would be improved. Managing approximately 61,520 acres of public land associated with Terror, Bear, Escalante, Monitor, Criswell, Roubideau, West Fork Roatcap, Potter, and Dry creeks and perennial tributaries would stabilize streambanks, increase instream cover, and reduce sedimentation on 46 stream miles of aquatic habitat. Eliminating surface-disturbing activities on approximately 76 stream miles of aquatic habitat would increase streambank cover, improve bank stability and water quality, and reduce soil compaction, sedimentation, and siltation. Land treatment projects in or near stream channels would increase sedimentation over the short-term and decrease it over the long-term.

**Impacts from Mineral Resources Management.** No surface occupancy stipulations and mineral withdrawals would decrease sedimentation, siltation, and streambank degradation. Road and pipeline development would lead to increased sedimentation and streambank instability on ten stream miles of aquatic habitat.

**Impacts from Soils and Water Resources Management.** In-channel structures designed to reduce sedimentation and salinity would improve aquatic habitat of streams below these structures.

**Impacts from Riparian Zone Management.** Improved riparian management on 6,385 acres of public land would result in improvement of 40 stream miles of aquatic habitat. Streambank stability, sedimentation, and water temperatures would benefit from improved streambank cover.

**Impacts from Livestock Grazing Management.** Intensive grazing management on 75 stream miles of aquatic habitat combined with a 35 percent utilization of key forage species limitation would improve streambank stability and

## CONSERVATION ALTERNATIVE IMPACTS

cover. Sedimentation would decrease and water temperatures would stabilize. Land treatment projects in or near stream channels would increase sedimentation over the short-term and decrease it over the long-term.

**Impacts from Forest Management.** Road construction across aquatic areas could cause increased sedimentation, bank degradation, and water temperatures, and decreased streambank cover.

**Impacts from Recreation Management.** Restricting river use in the Gunnison Gorge to six group encounters per day would improve streambank vegetation and water quality and reduce sedimentation. Aquatic habitat in the Gunnison Forks area would continue to be degraded due to trampling and intensive recreational use.

**Impacts from Off-Road Vehicle Management.** Closing areas to ORV use, imposing seasonal restrictions on ORV use, and restricting vehicle use to designated roads and trails in riparian areas should improve streambank stability and reduce sedimentation. The areas remaining open to ORV use would be subject to degradation.

### *CUMULATIVE IMPACTS ON AQUATIC WILDLIFE HABITAT*

Approximately 150 stream miles of aquatic habitat would improve under management emphasizing habitat quality and protection. Eliminating or reducing surface-disturbing activities and limiting livestock grazing utilization to 35 percent would have the greatest overall beneficial effect.

## IMPACTS ON LIVESTOCK GRAZING

### *IMPACTS FROM PROPOSED MANAGEMENT ACTIONS*

**Impacts from Livestock Grazing Management.** Not allocating any additional forage to livestock would reduce present grazing preferences by the 5,758 AUMs currently in suspension on 54 grazing allotments. There would be loss of forage and increased livestock distribution problems due to the lack of land treatment projects.

**Impacts from Soils and Water Resources Management.** Limiting livestock utilization to 35 percent of key forage species on 48,279 acres would reduce livestock allocations by 666 AUMs on 34 grazing allotments. Eliminating livestock grazing on 48,279 acres from March 1 through May 31 could shift some livestock use to the fall, resulting in increased conflicts between livestock grazing and hunting use, higher mortality from disease due to longer spring confinement, increased trailing use, and decreased hay production due to livestock use of base property hay lands for a longer period in the spring.

**Impacts from Riparian Zone Management.** Limiting livestock utilization to 35 percent of key forage species on 6,385 acres of riparian zones would reduce livestock allocations by 200 AUMs on five grazing allotments. Eliminating livestock grazing on 6,385 acres from March 1 through May 31 could shift some livestock use to the fall, resulting in increased conflicts between livestock grazing and hunting use, higher mortality from disease due to longer spring confinement, increased trailing use, and decreased hay production due to livestock use of base property hay lands for a longer period in the spring. Reduced trailing use through riparian zones could increase trailing time and operating costs and require more corrals.

**Impacts from Threatened and Endangered Species Management.** Eliminating livestock grazing use on 2,272 acres would reduce livestock allocations by 128 AUMs on five grazing allotments. Livestock use would be eliminated on one allotment.

**Impacts from Wildlife Habitat Management.** Land treatment projects would improve livestock forage and distribution. Maintaining at least 20 percent sagebrush cover in sage grouse habitat areas would reduce the effectiveness of land treatment projects by 5 to 10 percent and the anticipated project life by half. Limiting livestock utilization on riparian vegetation in aquatic habitat emphasis areas to 35 percent would reduce livestock allocations by 264 AUMs on eight grazing allotments.

**Impacts from Forest Management.** Managing 1,270 acres of currently grazed commercial forest lands and 24,380 acres of currently grazed woodlands for sustained yield production would preclude any land treatment projects in these areas, resulting in a 10 percent loss of forage (205 AUMs) over the long-term. Timber and woodland harvests would increase livestock forage and improve livestock distributions.

**Impacts from Recreation Management.** Restricting fencing in portions of the Gunnison Gorge SRMA could preclude the possibility of changing the livestock class from sheep to cattle and could eliminate opportunities to use fencing to improve livestock distribution. Eliminating livestock use on 1,520 acres in the Storm King Peak area would reduce livestock allocations by 40 AUMs on two grazing allotments.

**Impacts from Off-Road Vehicle Management.** Limiting vehicle use on grazing areas through closures or restrictions would improve livestock forage, decrease harassment, and reduce management problems created by ORV use.

### *CUMULATIVE IMPACTS ON LIVESTOCK GRAZING*

Forage available for livestock use would be reduced by 1,298 AUMs over the short-term and by an additional 5,963 AUMs over the long-term. The possibility of allocating

## CHAPTER FOUR

1,570 AUMs for livestock use on currently unallotted areas would be foregone. Livestock management costs would increase substantially on those allotments where utilization and trailing would be restricted.

### IMPACTS ON FORESTRY

#### *IMPACTS FROM PROPOSED MANAGEMENT ACTIONS*

**Impacts from Forest Management.** Managing 2,251 acres of commercial forest lands for sustained yield would permit an annual harvest of 166.5 MBF of timber. Managing 31,997 acres of suitable woodlands for sustained yield would allow annual harvests of 1,600 cords of fuelwood.

**Impacts from Riparian Zone Management.** Eliminating harvest on 482 acres of suitable woodlands and on 32 acres of commercial forest lands within riparian zones would reduce annual fuelwood production by 24 cords and annual timber production by 2.5 MBF.

**Impacts from Threatened and Endangered Species Management.** Eliminating harvests on 116 acres of suitable woodlands within the Escalante Canyon RNA would annual reduce fuelwood production by six cords.

**Impacts from Wildlife Habitat Management.** Eliminating harvests on 12,918 acres of suitable woodlands and on 121 acres of commercial forest lands within existing land treatments on crucial deer and elk winter range and waterfowl habitat areas would reduce annual fuelwood production by 645 cords and annual timber production by nine MBF.

**Impacts from Recreation Management.** Eliminating harvests on 1,281 acres of commercial forest lands within the Storm King Peak ski area would reduce annual timber production by 95 MBF.

**Impacts from Cultural Resources Management.** Eliminating 36 acres of suitable woodlands within cultural resource areas from harvest would reduce annual fuelwood production by two cords.

**Impacts from Wilderness Management.** Annual harvests of 17 cords of fuelwood would be precluded on 337 acres of woodlands which would be included in designated wilderness areas. The effect on the total forestry program would be minor.

#### *CUMULATIVE IMPACTS ON FORESTRY*

Multiple-use needs, primarily wildlife and recreation, would eliminate sustained yield production on 13,889 acres of suitable woodlands, resulting in an annual loss of 694 cords of fuelwood. Harvests on 1,434 acres of suitable commercial forest lands would be precluded, resulting in an annual loss of 106.5 MBF of timber. Intensive

management of forest resources would result in annual harvests of 166.5 MBF from 2,251 acres of suitable commercial forest lands, and 1,600 cords from 31,997 acres of suitable woodlands.

### IMPACTS ON RECREATION

#### *IMPACTS FROM PROPOSED MANAGEMENT ACTIONS*

**Impacts from Recreation Management.** Under this alternative, recreationists would benefit significantly from management of a variety of recreation opportunities available within the planning area. Managing 50,167 acres (Management Units C-6, C-7, C-8, and C-9) for recreation would protect scenic values and increase recreation opportunities in these areas. Managing 1,520 acres in the Storm King Peak area for potential downhill ski development would increase the availability of lands for this type of recreational use. Designating the 1,895-acre Escalante Canyon RNA as a scenic area would protect the scenic qualities of this valued recreation resource.

Limiting boating use in the Gunnison Gorge to a maximum of six group encounters per day would be highly beneficial to recreationists seeking scarce wilderness boating experiences. No Colorado rivers are managed for wilderness boating experiences. Recreation demand on the six designated wilderness rivers (273 river miles) in the continental United States far exceeds the number of use permits available annually.

As competition for river-use permits in the Gunnison Gorge exceeds allocations, private and commercial users would experience inconvenience in trip planning and increased possibilities of not obtaining a permit. Allocating two-thirds of available river-use permits for private use and one-third for commercial use would benefit private users at the expense of commercially-outfitted recreationists.

**Impacts from Mineral Resources Management.** Prohibiting surface facilities and mining techniques that result in surface subsidence would protect potential ski operations in the Storm King Peak area from subsidence-related damage to ski lifts and from competition with coal mining for the few preferred building locations.

Recreational settings would be protected from mineral activities by mineral withdrawals, no surface occupancy restrictions for oil and gas activities, and both leasing and mineral material closures. Many of these restrictions on mineral activities are within high-value recreation areas.

**Impacts from Riparian Zone Management.** Protecting and enhancing 6,385 acres of riparian zones would benefit recreationists seeking scenic and educational opportunities within this diverse wildlife community.

## CONSERVATION ALTERNATIVE IMPACTS

**Impacts from Threatened and Endangered Species Management.** Permitting only walk-in access within the Escalante Canyon RNA would adversely impact recreationists wishing to camp in the immediate vicinity of their vehicles. However, there are numerous alternative areas suitable for vehicle camping on similar and adjacent lands.

**Impacts from Wildlife Habitat Management.** Managing the Gunnison Forks and Billy Creek habitat management areas, deer and elk winter range, antelope range, sage grouse and waterfowl areas, and aquatic habitat would enhance opportunities for hunting, fishing, and wildlife observation.

**Impacts from Livestock Grazing Management.** Recreational ORV opportunities would be protected by not permitting placement of livestock facilities that create safety hazards or impede vehicle use on 34,526 acres.

**Impacts from Forest Management.** Prohibiting woodland harvests in the Escalante Canyon ACEC and all but 1,255 acres of the Gunnison Gorge SRMA would protect recreation opportunities in scenic and predominantly natural settings.

**Impacts from Off-Road Vehicle Management.** Closing the WSAs, the Needle Rock ONA, and the Escalante Canyon RNA to ORV use would ensure continued availability of high quality and non-motorized recreation settings in these areas. Restricting vehicle use to designated roads and trails on 15,208 acres of the Gunnison Gorge SRMA would protect the scenic values of these predominantly natural recreation lands. Managing 34,526 acres as open to ORV use would accommodate long-term ORV use demands and would decrease pressure on areas under ORV use restrictions.

**Impacts from Cultural Resources Management.** A Class III cultural resource inventory within the cultural emphasis areas would benefit recreationists by identifying cultural sites with public educational values.

**Impacts from Visual Resources Management.** Protecting scenic qualities of the WSAs, the Needle Rock ONA, and the Escalante Canyon RNA (VRM Class I) and 15,208 acres of the Gunnison Gorge SRMA (VRM Class II) would ensure continued availability of high quality and predominantly natural settings in these areas.

**Impacts from Wilderness Management.** Designating 41,865 acres as wilderness would protect wilderness recreation opportunities in the three WSAs.

**Impacts from Major Utility Development.** Management of 45,713 acres of recreation and wilderness areas as closed to development of major utility facilities would protect high quality recreation settings.

**Impacts from Acquisition of Non-Federal Lands.** Acquiring 2,200 acres that are contiguous to or within the Gunnison Gorge SRMA would protect recreation settings,

provide additional public access, and reduce conflicts between recreationists and private landowners.

**Impacts from Acquisition of Access.** Acquiring public access along the Gunnison Gorge rim southwest of the Gunnison Forks area would provide access into high value recreation lands.

### *CUMULATIVE IMPACTS ON RECREATION*

Recreation opportunities would be significantly enhanced and increased under this alternative. A total of 95,447 acres would be managed for a wide variety of recreation opportunities including but not limited to river boating, ORV use, downhill skiing, wilderness experiences, back country travel, hunting, fishing, and scenic viewing. Intensive wildlife management and restrictions on mineral activities would further protect and enhance recreation values.

## IMPACTS ON CULTURAL RESOURCES

### *IMPACTS FROM PROPOSED MANAGEMENT ACTIONS*

**Impacts from Cultural Resources Management.** Cultural clearances of areas proposed for disturbance would contribute to the cultural data base, decrease cultural site disturbance, and increase the potential for discovery of sites eligible for inclusion in the National Register of Historic Places.

Managing 2,738 acres as current scientific use areas would protect cultural resource sites until a Class III inventory could be completed. After the inventory, high-value cultural sites would receive permanent protection under other protective categories. Scientific and educational values of both sites and site vicinities would be protected from surface disturbance. Scientific data typically gathered in site vicinities and necessary for a complete cultural study would remain intact. Educational and interpretive values would benefit from a naturally-appearing site environment. The opportunity would exist for protecting appropriate sites until excavation techniques are developed that would provide for a more informative scientific study.

**Impacts from Mineral Resources Management.** Managing the cultural resource areas under a no surface occupancy stipulation for oil and gas leases, a locatable minerals withdrawal, and a closure to disposal of mineral materials would protect the cultural integrity of these areas from potentially disturbing activities.

**Impacts from Wildlife Habitat Management.** Not permitting vegetation manipulation within the cultural resource areas would protect the integrity of cultural site vicinities.

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**Impacts from Livestock Grazing Management.** Not permitting new livestock grazing activities or facilities that would result in herd concentration would eliminate the potential for additional disturbances of cultural sites due to livestock use.

**Impacts from Forest Management.** Closing cultural resource areas to woodland management and harvest would eliminate this potentially disturbing activity. In addition, this action would decrease both intentional and unintentional disturbance of cultural sites as fewer people would be motivated to enter the area without the prospect of obtaining fuelwood.

**Impacts from Off-Road Vehicle Management.** Exposed cultural resources would be protected from vehicle-related damage on 40 percent of the planning area managed as closed to ORV activities. Illegal artifact collection and site vandalism would also be reduced in these areas as both access and transport of artifacts would be significantly more difficult. The remaining 60 percent of the planning area would lack this protection as ORV use would be permitted during all or portions of the year.

**Impacts from Visual Resources Management.** Managing the cultural resource areas within VRM Class II guidelines would protect educational and interpretive values of naturally-appearing site vicinities.

**Impacts from Wilderness Management.** Designation of the three WSAs as wilderness areas would generally benefit cultural resources. Closing the areas to motorized access would eliminate vehicle-related damage to exposed cultural features. Illegal artifact collection and site vandalism would be reduced as both access and transport of artifacts would be significantly more difficult. The integrity of cultural resources would be protected as no potential would exist for removal of these resources as mitigation for surface-disturbing activities.

Gaining knowledge of cultural resources would be impeded as site excavations would not be permitted in most instances. Field surveys, normally required during environmental analyses of proposed surface-disturbing activities, would also be eliminated as a data source. As stabilization would not normally be permitted, exposed cultural sites would continue to deteriorate over the long-term due to weathering and other natural forces.

**Impacts from Major Utility Development.** Closing cultural resource areas to development of major utility facilities would protect the integrity of these areas from additional disturbance from utility development.

**Impacts from Acquisition of Access.** Acquiring public access to any of the seven areas identified for access acquisition would increase the potential for illegal disturbance of cultural sites located in these areas.

## CUMULATIVE IMPACTS ON CULTURAL RESOURCES

This alternative would significantly increase protection of cultural resources. Intensively managing 2,738 acres for cultural resources would protect significant and concentrated cultural sites and would allow for extensive cultural inventory and study within this area. Not permitting ORV activities on 40 percent of the planning area would limit easy access to cultural resources by vandals and relic-hunters. Numerous measures to eliminate or restrict surface-disturbing activities as prescribed by this alternative would reduce disturbances of cultural resources that are typically associated with increased human activities.

Measures to eliminate or limit surface-disturbing activities would also reduce the number of cultural inventories performed in response to project proposals. Excavations of cultural resources would not be permitted within the WSAs (40,792 acres). These actions would decrease development of the local cultural data base. Class III inventories on 2,738 acres of cultural emphasis areas would possibly offset this negative impact.

## IMPACTS ON VISUAL RESOURCES

### IMPACTS FROM PROPOSED MANAGEMENT ACTIONS

**Impacts from Visual Resources Management.** Table 4-10 lists the acres of land in each VRM classifications.

Table 4-10

### ACRES IN EACH VRM CLASSIFICATION: CONSERVATION ALTERNATIVE

VRM CLASS	ACRES	PERCENTAGE OF PLANNING AREA
I	43,807	9
II	47,852	10
III	37,355	8
IV	354,063	73
TOTALS	483,077	100

**Impacts from Coal Management.** Not leasing 478 acres in the Adobe Badlands WSA and restricting coal development within riparian and aquatic habitat and the Storm King Peak ski area could protect visual resources in these locations from visually-contrasting coal development.

## CONSERVATION ALTERNATIVE IMPACTS

**Impacts from Oil and Gas Management.** Oil and gas activities are not anticipated to reach levels that would significantly degrade visual resources. Not leasing 41,865 acres in the three WSAs and restricting leases on 29,915 acres with no surface occupancy stipulations would protect visual resources in high quality scenic areas utilized by recreationists.

**Impacts from Locatable Minerals Management.** Mineral withdrawals on 98,852 acres would protect these areas from potential mineral activities that would degrade scenic quality. Most of these withdrawn areas are within highly scenic areas utilized by recreationists. Mineral development in the remainder of the planning area would be anticipated to alter the landscape characteristics of a few localized viewsheds.

**Impacts from Mineral Materials Management.** Closing 84,761 acres to disposal of mineral materials would protect these areas from scenic degradation due to mineral material activities.

**Impacts from Forest Management.** Closing riparian areas, the Escalante Canyon RNA, the majority of the Gunnison Gorge SRMA, and the Storm King Peak ski area to forest product harvesting would protect the scenic qualities in these areas. Forest and woodland harvests would alter landscape characteristics in localized areas.

**Impacts from Recreation Management.** Recreation management would maintain landscape characteristics and preserve scenic qualities of the Escalante Canyon RNA, the Needle Rock ONA, the lower Gunnison River SRMA, and a portion of the Gunnison Gorge SRMA. Visual resource protection needs would increase as recreation management would increase viewer volume and sensitivity and decrease viewing distance.

**Impacts from Off-Road Vehicle Management.** Managing 60 percent of the planning area as open to ORV recreation for all or portions of the year would degrade landscape characteristics in these areas. These impacts would be most pronounced on 34,526 acres managed for ORV recreational opportunities.

**Impacts from Wilderness Management.** Designating the three WSAs as wilderness would preserve the natural scenic values of these areas.

### *CUMULATIVE IMPACTS ON VISUAL RESOURCES*

Designating 19 percent of the planning area (91,659 acres) as VRM Class I or VRM Class II would protect highly scenic visual resources. These lands include the areas of high quality scenery that provide significant recreation opportunities. Designating the remainder of the area as VRM Class III or VRM Class IV would maintain the overall visual character of the planning area but would allow for

visually-contrasting projects or disturbances within localized viewsheds.

## IMPACTS ON WILDERNESS

### *IMPACTS FROM PROPOSED MANAGEMENT ACTIONS*

**Impacts from Wilderness Management.** Designating the Gunnison Gorge WSA as wilderness would permanently protect the high quality wilderness values of this area, which include a pristine environment and outstanding opportunities for primitive and unconfined recreation. The high quality nature of these values is evidenced by the BLM recreation lands designation in 1972, the determination that the area is suitable for wild and scenic river designation, and the Colorado DOW's Gold Medal Trout Fishery designation. The WSA is contiguous to the nationally acclaimed Black Canyon of the Gunnison Wilderness Area, which is administered by the NPS. Designating the Gunnison Gorge as wilderness would expand that wilderness area. It would also permanently protect the Black Canyon/Gunnison Gorge system as one geologic, ecologic, and physiographic unit.

Designating the Camel Back WSA and Adobe Badlands WSA as wilderness would permanently protect existing wilderness values in these areas, including pristine environments and opportunities for primitive and unconfined recreation. Supplemental features (diversity of wildlife, vegetation, and topography) would also be protected. Acquisition of 160 acres of private lands adjacent to and within the Camel Back WSA would benefit the naturalness and solitude of the area by eliminating the potential for non-wilderness and conflicting resource uses on these lands. Closing the Adobe Badlands WSA to ORV use would protect natural values by eliminating this popular recreational activity in the area.

## IMPACTS ON MAJOR UTILITY DEVELOPMENT

### *IMPACTS FROM PROPOSED MANAGEMENT ACTIONS*

**Impacts from Major Utility Management.** Determining which public lands within the planning area are available for development of major utility facilities provides utility companies with information necessary to plan and design projects. Table 4-11 lists the acres of public land identified as needed and not needed for major utility development under each management classification. Table 4-12 identifies the public lands under each management classification by management unit.

The following impacts pertain only to those public lands that are identified in the 1980 Western Regional Utility Corridor Study as being needed for future development of major utility facilities. Closures or restrictions on lands not

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Table 4-11  
 MANAGEMENT OF PUBLIC LANDS FOR MAJOR UTILITY DEVELOPMENT:  
 CONSERVATION ALTERNATIVE

MANAGEMENT CLASSIFICATION FOR DEVELOPMENT OF MAJOR UTILITIES	ACRES OF PUBLIC LAND		TOTALS
	Identified as needed for major utility development	Identified as not needed for major utility development	
Open	37,536	78,258	115,794
Open - not preferred	2,478	38,314	40,792
Sensitive	21,822	77,114	98,936
Seasonally closed	61,748	116,979	178,727
Closed	2,212	46,616	48,828
<b>TOTALS</b>	<b>125,796</b>	<b>357,281</b>	<b>483,077</b>

Source: 1980 Western Regional Utility Corridor Study.

identified as being needed for utility facilities would be assumed to have a negligible impact on local and regional major utility development.

**Impacts from Soils and Water Resources Management.** Construction and major maintenance of new major utility facilities would not be permitted on 15,568 acres from March 1 through May 31. Utility companies would experience operating inconvenience on these lands from April 15 to May 31 based on a typical construction/maintenance season of April 15 to October 15.

**Impacts from Threatened and Endangered Species Management.** Managing two tracts of land east of Montrose, totalling 377 acres, as closed to development of major utility facilities would have a low impact on major utility development in the area. These tracts could easily be avoided during planning and placement of utility facilities.

**Impacts from Wildlife Habitat Management.** No construction and major maintenance of new major utility facilities would be permitted on 29,515 acres of crucial deer and elk winter range from December 1 to May 1 and on 16,665 acres of antelope range from June 1 through June 30. Utility companies would experience operating inconvenience on crucial winter ranges from April 15 to May 1 and on antelope ranges from June 1 through June 30, based on a typical construction/maintenance season of April 15 to October 15.

**Impacts from Riparian Zone, Aquatic Habitat, and Livestock Grazing Management.** Major utility development would be restricted to no surface disturbance on 21,822 acres of riparian and/or aquatic corridors. Development of electrical transmission lines would be slightly impacted as wires could be suspended over narrow riparian/aquatic corridors. Placement of transmission line towers would likely have to be altered to accommodate these areas.

Future development of buried major utility facilities would be precluded in riparian/aquatic corridors as construction and maintenance of these facilities would result in surface disturbance. The majority of these lands are presently utilized for major utility facilities and are within important utility corridors linking the Montrose area with both the Grand Junction and Rifle areas. Many of these areas, especially in the upper North Fork valley, are preferred utility development locations as rugged topography on adjacent lands limits feasible utility routes. Utility companies would be required to utilize less desirable and cost-effective routes and would not realize the cost/benefits of grouping new and existing facilities.

**Impacts from Recreation Management.** Managing the 353-acre Lower Gunnison River SRMA as closed to development of major utility facilities would have a moderate negative impact on major utility development. The SRMA is within a narrow river corridor preferred for utility and transportation development. A railroad and telephone and electrical distribution lines are presently located on these lands. Closure of the area would require major utility

**CONSERVATION ALTERNATIVE IMPACTS**

Table 4-12

**MANAGEMENT OF PUBLIC LANDS FOR MAJOR UTILITY DEVELOPMENT BY MANAGEMENT UNIT:  
CONSERVATION ALTERNATIVE**

MANAGEMENT UNIT	MANAGEMENT CLASSIFICATION FOR MAJOR UTILITIES	ACRES OF PUBLIC LAND	
		Identified as needed for major utility development	Identified as not needed for major utility development
C-1	Closed	0	41,865
C-2	Closed	0	1,895
C-3	Closed	377	0
C-4	Sensitive	373	6,012
C-5	Closed	1,482	1,256
C-6	Open - not preferred	2,478	38,314
C-7	Closed	0	80
C-8	Open	1,985	6,957
C-9	Closed	353	0
C-10	Closed	0	1,520
C-11	Closed - 3/1 to 5/31	3,040	18,663
C-12	Closed - 3/1 to 5/31	12,528	14,050
C-13	Closed - 12/1 to 4/30	29,515	73,292
C-14	Closed - 4/15 to 7/15	0	1,712
C-15	Closed - 6/1 to 6/30	16,665	9,262
C-16	Open	593	16,440
C-17	Open	6,817	3,890
C-18	Sensitive	8,202	53,287
C-19	Open	0	1,280
C-20	Open	6,302	21,220
C-21	Sensitive	13,247	17,815
C-22	Open	3,725	1,728
C-23	Open	722	0
C-24	Open	1,342	7,771
C-25	Open	16,050	18,972
<b>TOTALS</b>		<b>125,796</b>	<b>357,281</b>

Source: 1980 Western Regional Utility Corridor Study.

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companies to utilize alternative and possibly less desirable routes.

Managing 2,478 acres within the Gunnison Gorge SRMA as open to but not preferred for development of major utility facilities would have a low to moderate negative impact on local utility development. Utility companies would incur additional costs in analyzing alternative routes and could be required to utilize less desirable and cost-effective routes.

**Impacts from Cultural Resources Management.** Precluding major utility development on seven tracts, totalling 1,482 acres, would have a moderate negative impact on future development of major utility facilities. Utility companies would be required to route facilities around these tracts. Existing 345 and 115 kv power transmission lines and a six-inch natural gas pipeline are in the immediate vicinity of or are within these areas. The cost/benefits of grouping new and existing facilities would not be realized and alternative routes would likely be less desirable and cost-effective.

### *CUMULATIVE IMPACTS ON MAJOR UTILITY DEVELOPMENT*

This alternative would result in a moderate to major adverse impact on major public utility development. Seasonal restrictions on construction and major maintenance on 49 percent of the lands identified as needed for future utility development would result in operating inconvenience and potential cost increases for utility companies. Restrictions would be most significant in the erosion and salinity control areas (15,568 acres) where one-quarter of the typical construction season would be under this operating restriction.

Excluding major utilities on 2 percent of the lands identified as needed for future utility development and excluding major buried utility facilities on an additional 17 percent of these lands would require utility developers to utilize less desirable and cost-effective areas. As all of these excluded areas are within present locations of major utility facilities, developers would not realize the cost/benefits of grouping new and existing facilities.

Future development of major buried utility facilities would be greatly restricted in the upper North Fork Valley and lower Gunnison River areas where rugged topography limits feasible utility routes. In addition, these two areas provide important major utility routes linking Montrose with both the Grand Junction and Rifle areas.

## IMPACTS ON ACCESS

### *IMPACTS FROM PROPOSED MANAGEMENT ACTIONS*

**Impacts from Acquisition of Access.** This alternative would provide access to seven public land areas for fuelwood gathering, hunting, and administration purposes, but would not adequately satisfy all access needs as eight additional areas would remain without legal public and administrative access.

## IMPACTS ON ECONOMIC RESOURCES

### *IMPACTS FROM PROPOSED MANAGEMENT ACTIONS*

**Impacts from Coal Management.** Present and future demands for coal in Delta and Gunnison counties, with market values ranging from \$31 million to \$103 million annually (1984 values), would be met over the life of this plan. Meeting coal demands would have a corresponding positive impact on generation of local income and royalties paid to federal and state governments.

Designating the Adobe Badlands WSA as wilderness would preclude the potential economic benefits of developing 21 million tons of high to medium development potential coal on 478 acres within the WSA. This negative impact on future coal development would be negligible as the coal foregone amounts to less than one percent of the high to medium coal reserves in the planning area. In addition, this coal is not contiguous to existing leases and is not expected to be needed to maintain mining operations over the long-term.

Restricting portions of potential coal lease areas to no surface disturbance (6,288 acres) and to both no surface disturbance and no subsidence (1,520 acres) would likely have no significant economic impacts as coal production levels over the life of the plan would not be affected. Existing coal operators seeking to expand into restricted areas would probably experience increased production costs since much of this acreage is in preferred surface facility locations and no-substance mining techniques are less cost-effective than conventional methods. These production cost increases could result in coal areas becoming uneconomical to mine. The size and distribution of these restricted areas could have a downward influence on production levels over the long-term with corresponding effects on both local employment, incomes, and royalties paid to federal and state governments.

**Impacts from Oil and Gas Management.** Stipulations placed on oil and gas leases in the planning area would not likely have measurable economic impacts. However, a no surface occupancy stipulation on 29,915 acres would increase drilling costs as directional drilling would be required. Any increased operating costs would lower the potential for economic production. In addition, economic

## CONSERVATION ALTERNATIVE IMPACTS

benefits associated with the unknown oil and gas potential on 7,740 acres managed under a no surface occupancy stipulation and beyond the practical limits of directional drilling would not be achieved.

**Impacts from Locatable Minerals Management.** Economic benefits associated with the unknown mineral potential on 98,852 acres of withdrawn lands would not be achieved.

**Impacts from Soils and Water Resources Management.** Constructing and maintaining salinity control projects would contribute to lower water treatment costs downstream. During the life of the plan, the projected reduction in salinity of 3,633 to 7,708 tons would serve to lower salinity costs in the Colorado River Basin by \$210,714 to \$447,064. The local economy would benefit from slightly increased soil productivity and reduced costs for less frequent removal of reservoir sedimentation.

**Impacts from Livestock Grazing Management.** Current trends and conditions associated with management of 31,690 AUMs, valued at \$240,844 (1985 values), would continue. These AUMs represent a decrease of 7,310 AUMs, valued at \$55,556, from the existing situation. Any loss of AUMs could result in financial losses for the affected ranching operations.

**Impacts from Forest Management.** The sale of forest and woodland products would produce about \$19,847 in federal revenues annually. These revenues would be \$601 more than the average annual revenues since 1981. Local employment and income would be supported to the extent that timber and woodland harvests would be by local commercial cutters and sold locally. The sale of 1,326 cords of fuelwood annually would offset local residential heating costs.

**Impacts from Recreation Management.** Development of a downhill ski area on Storm King Peak would have a low to moderate (10 percent or less) impact on local social and economic conditions. Table 4-13 identifies this impact based on an existing destination-type ski area proposal for Storm King Peak, a major construction period from 1993 to 1997, and the general growth projections for the Colorado ski industry.

The population of Montrose County would temporarily increase by a significant 10 percent as a result of ski area construction. Surrounding counties, especially Delta County, would experience a similar but smaller increase in population due to demands for a labor force and for services of the type that support large construction projects. After termination of the major construction phase, this additional project-related population would decline to several hundred

Table 4-13

### SOCIAL AND ECONOMIC IMPACTS FROM STORM KING PEAK SKI AREA DEVELOPMENT: CONSERVATION ALTERNATIVE

IMPACT	YEAR			
	1995	2000	2005	2009
SKI REVENUES	\$2,320,000	\$6,461,200	\$10,602,400	\$13,920,000
LABOR INCOME				
Montrose County	\$33,146,000	\$3,018,000	\$3,134,000	\$3,604,000
Delta County	\$13,656,000	\$1,214,000	\$1,204,000	\$4,386,000
POPULATION INCREASE (number of persons)				
Montrose County	3,720	448	397	327
Delta County	1,192	848	150	96
LABOR FORCE INCREASE (number of jobs)				
Montrose County	1,609	207	212	175
Delta County	663	434	78	50

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workers and families supported financially by operational and support service jobs. During operation, the expected annual skier days for the ski area would range from 20,000 in 1995 to 120,000 in 2009.

The financial viability of a destination-type downhill ski area on Storm King Peak is speculative. Current conditions indicate a lower than average growth in the Colorado ski market with some ski areas experiencing a slight decline in skier days during the 1985-86 ski season. Projected ski area growth rates in Colorado appear to be flat to slightly increasing with a high level of competition between the numerous well-established destination ski areas for the available skier market.

**Impacts from Acquisition of Non-Federal Lands.** If private landowners are willing to sell 2,520 acres of land to the BLM, the revenue infusion into the local economy could amount to \$1.512 million. Any other lands sold to the BLM could result in a revenue infusion into the local economy of up to \$600 per acre. These infusions assume that this revenue would remain in the local economy.

### *CUMULATIVE IMPACTS ON ECONOMIC RESOURCES*

The cumulative impact on the local economy is likely to be beneficial but not large unless the Storm King Peak area is developed. Individual oil and gas lease holders as well as coal lease operators may be adversely affected by increased production costs due to restrictions prescribed by this alternative. The loss of AUMs could result in financial losses to ranching operations. These negative economic impacts would likely be offset by development of coal, water, forest, and recreation resources. Development of the ski area would be especially beneficial to the local economy.

## IMPACTS OF THE PREFERRED ALTERNATIVE

### IMPACTS ON AIR QUALITY

#### *IMPACTS FROM PROPOSED MANAGEMENT ACTIONS*

**Impacts from Air Quality Management.** Air pollution emissions from primary sources would be minimized through enforcement of applicable policies, regulations, and statutes.

**Impacts from Wildlife Habitat and Livestock Grazing Management.** Short-term localized impacts on air quality would result from vegetation manipulation practices. These minor impacts would be dispersed throughout the planning area.

**Impacts from Off-Road Vehicle Management.** Managing 82 percent of the planning area as open to ORV use for all or portions of the year would result in increased fugitive dust emissions due to vehicle-caused soil erosion. Allowing ORV use on 25,277 acres of highly erodible soils during critical soil moisture periods would significantly increase localized fugitive dust levels as recreational ORV use increases.

### *CUMULATIVE IMPACTS ON AIR QUALITY*

Increased levels of air pollution are anticipated due to regional growth and development. No land-use allocations specified in this alternative would have significant long-term effects on air quality.

### IMPACTS ON COAL

#### *IMPACTS FROM PROPOSED MANAGEMENT ACTIONS*

**Impacts from Coal Management.** Allowing continued development of coal on 26,663 acres of existing coal leases and identifying 83,334 acres of federal coal estate as acceptable for further coal leasing consideration could permit leasing and mining of up to 5,730 million tons of in-place coal. An additional 1,756 acres of federal coal reserves under private surface and bounded by the Gunnison National Forest would be managed to permit leasing consideration of 101 million tons of in-place coal.

The possible leasing of up to 5,730 million tons of coal would far exceed coal demand over the life of this plan as the 1985 coal production from Delta and Gunnison counties was 2.2 million tons and optimistic annual coal production forecasts for this area range from 4.5 to 7.35 million tons for the years 1990 to 2000. However, any increase in available coal would increase coal leasing opportunities for coal developers.

**Impacts from Oil and Gas Management.** Leasing and subsequent development of oil and gas in the same areas identified as acceptable for further coal leasing consideration could reduce the amount of coal available for mining. This reduction would depend on the scope and timing of development of both resources and the amount of coal determined necessary to be left as pillars to protect oil and gas wells. No projections have been made on coal losses due to oil and gas well protection. However, there could be a conflict if the amount of coal required to be left in place would make the area uneconomical to mine.

**Impacts from Riparian/Aquatic Systems Management.** Requiring mitigating measures for surface disturbances within these areas would result in increased operating costs for coal companies.

**PREFERRED ALTERNATIVE IMPACTS**

**Impacts from Wildlife Habitat Management.** Not permitting new road and facility construction from December 1 through April 30 on 920 acres of deer and elk winter range could result in higher development costs and scheduling inconvenience for coal companies.

*CUMULATIVE IMPACTS ON COAL*

This alternative is not anticipated to impact coal production levels over the life of the plan. Restrictive management on portions of the coal planning areas would be likely to increase operating costs and result in scheduling inconvenience for coal companies. Under this alternative, 4,396 million tons of in-place federal coal (84,170 acres) would be acceptable for further coal leasing consideration and 48 million tons of in-place federal coal (920 acres) would be acceptable for further coal leasing consideration with stipulations. Development of 1,387 million tons of coal on 26,663 acres of existing coal leases would continue

**IMPACTS ON OIL AND GAS**

*IMPACTS FROM PROPOSED MANAGEMENT ACTIONS*

**Impacts from Oil and Gas Management.** Table 4-14 lists the acres of federal oil and gas estate in each leasing category, and Table 4-15 lists the acres under each leasing category by management unit. Managing 511,074 acres with standard lease terms would allow for exploration and development with few restrictions. Managing 174,542 acres with seasonal stipulations on surface occupancy could result in higher exploration, drilling, and development costs, along with scheduling inconvenience. Managing 80 acres with a

Table 4-14

**LAND IN EACH  
OIL AND GAS LEASING CATEGORY:  
PREFERRED ALTERNATIVE**

<b>LEASE CATEGORY</b>	<b>ACRES</b>
No leasing	21,038
Standard lease terms	511,074
Leasing with stipulations	
No surface occupancy (NSO)	80
Seasonal	174,542

no surface occupancy stipulation would increase drilling costs as directional drilling would be required. Any increased operating costs could lower the potential for production.

**Impacts from Coal Management.** Coal mining could result in delays in drilling schedules, higher drilling and development costs, and requirements for use of special techniques and alternate drilling sites. Coal mining could damage existing wells and remove or reduce gas resources if potential gas producing zones were located within mineable coal beds.

**Impacts from Soils and Water Resources Management.** Managing 30,720 acres of salinity control areas with seasonal stipulations (March 1 through May 31) could result in higher exploration, drilling, and development costs, along with scheduling inconvenience. This potential adverse impact would be most significant in the KGS areas where the probability of continued exploration and development is the greatest.

**Impacts from Wildlife Habitat Management.** Managing 153,679 acres of crucial deer and elk winter range, bald eagle winter habitat, elk calving areas, and waterfowl habitat areas with seasonal stipulations could result in higher exploration, drilling, and development costs, along with scheduling inconvenience. This potential adverse impact would be most significant in the KGS areas where the probability of continued exploration and development is the greatest.

**Impacts from Recreation Management.** Managing the 80-acre Needle Rock ONA with a no surface occupancy stipulation would result in higher drilling and development costs as directional drilling would be required.

**Impacts from Wilderness Management.** The negative impact of closing the Gunnison Gorge WSA to leasing would be negligible as geologic structures in this area have no favorability for oil and gas accumulation.

*CUMULATIVE IMPACTS ON OIL AND GAS*

Seasonal stipulations on oil and gas activities would be most significant in the salinity control areas and crucial deer and elk winter ranges that are in close proximity to the KGS areas. Seasonal stipulations (174,542 acres) and a no surface occupancy stipulation (80 acres) could increase exploration and development costs to the point of decreasing oil and gas production potential within the affected portions of the planning area. These negative impacts would be rated low to moderate since the restricted acres have a low to moderate favorability for oil and gas production.

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Table 4-15  
**MANAGEMENT OF OIL AND GAS LEASES BY MANAGEMENT UNIT:  
 PREFERRED ALTERNATIVE**

MANAGEMENT UNIT	ACRES WITH STANDARD LEASE TERMS	ACRES WITH SEASONAL STIPULATIONS				ACRES WITH NO SURFACE OCCUPANCY STIPULATIONS	ACRES CLOSED TO LEASING
		12/1 to 4/30	3/15 to 5/30	5/1 to 6/15	3/1 to 5/31		
D-1	118,238	68,572	—	—	—	—	—
D-2	29,103	37,007	—	—	—	—	—
D-3	19,055	28,552	—	—	—	—	—
D-4	32,715	8,077	—	—	—	—	—
D-5	—	—	—	—	30,720	—	—
D-6	—	—	—	—	—	—	21,038
D-7	13,865	3,367	—	—	—	—	—
D-8	8,942	—	—	—	—	—	—
D-9	6,320	—	—	—	—	—	—
D-10	—	—	—	3,292	—	—	—
D-11	—	—	1,990	—	—	—	—
D-12	1,895	—	—	—	—	—	—
D-13	377	—	—	—	—	—	—
D-14	—	—	—	—	—	80	—
D-15	48,830	1,042	—	—	—	—	—
<b>TOTALS</b>	<b>279,340</b>	<b>146,617</b>	<b>1,990</b>	<b>3,292</b>	<b>30,720</b>	<b>80</b>	<b>21,038</b>

**IMPACTS ON LOCATABLE MINERALS**

*IMPACTS FROM PROPOSED MANAGEMENT ACTIONS*

**Impacts from Locatable Minerals Management.** Identifying 644,664 acres as open to mineral entry and location would make this area available for exploration and development under the general mining laws. Withdrawing 30,478 acres from mineral entry and location would eliminate these lands from possible mineral development. Table 4-16 lists the acres proposed for protective withdrawal.

The negative impact of withdrawing the Gunnison Gorge WSA from mineral entry and location would be low to moderate as geologic structures in the area have a moderate favorability for accumulation of locatable minerals. There are no known mineral deposits in the WSA. Approximately 20 lode claims and several prospects which are located within or adjacent to the WSA indicate some minerals interest in the local area.

Mining claimants with invalid claims located within the WSA would be adversely affected as development or extraction would be permitted only on claims proven to have valid mineral discoveries. In addition, the potential

for mineral discoveries on lands unclaimed prior to wilderness designation would be eliminated.

Table 4-16

**FEDERAL SURFACE/MINERALS  
 WITHDRAWN FROM ENTRY TO  
 PROTECT EACH LISTED RESOURCE:  
 PREFERRED ALTERNATIVE**

RESOURCE REQUIRING PROTECTIVE WITHDRAWAL	ACRES WITHDRAWN
<b>RECREATION</b>	
Needle Rock ONA	80
<b>WILDERNESS</b>	
Gunnison Gorge WSA	21,038
<b>OTHER</b>	
Bureau of Reclamation withdrawals	9,360
<b>TOTAL</b>	<b>30,478</b>

**PREFERRED ALTERNATIVE IMPACTS**

**IMPACTS ON MINERAL MATERIALS**

*IMPACTS FROM PROPOSED MANAGEMENT ACTIONS*

**Impacts from Mineral Materials Management.** Identifying 354,485 acres as open to disposal of mineral materials with no seasonal restrictions would make this resource available to the public and government entities on 74 percent of the planning area with a minimum of restrictions. Managing 96,830 acres with seasonal restrictions on disposal activities could result in scheduling inconvenience for operators. The impact of closing 29,710 acres to disposal of mineral materials would be low as there are numerous alternative areas available elsewhere in the planning area. In some circumstances, the costs of hauling mineral materials could be increased as closures could increase travel distances to open mineral material locations. Requiring approval of the withdrawing agency for disposal of mineral materials on 9,360 acres could result in the denial of permit applications for mineral materials on these lands.

Retaining the withdrawal on the 80-acre Needle Rock ONA would have a low negative impact as there are no known mineral values within this area. Retaining the Bureau of Reclamation withdrawals on 9,360 acres would have an unknown impact as little data is available on mineral potentials within these areas. There are no known mineral values on these withdrawn lands and little interest has been expressed for mineral explorations.

Managing the Fairview ACEC (377 acres) and 8,406 acres of salinity control areas as closed to ORV use would result in increased operating costs and inconvenience for mining claimants as plans of operations would be required for all activities except casual use.

Disposal of public lands could result in management problems associated with split-estate lands.

Table 4-17 lists the federal surface in each mineral material disposal category by protected resource.

Table 4-17

**FEDERAL SURFACE IN EACH MINERAL MATERIAL DISPOSAL CATEGORY  
BY PROTECTED RESOURCE:  
PREFERRED ALTERNATIVE**

RESOURCE REQUIRING PROTECTIVE CATEGORY	ACRES OPEN	ACRES WITH SEASONAL RESTRICTIONS		ACRES CLOSED
		12/1 to 4/30	3/1 to 5/31	
Federal surface with no restrictions required	354,485	—	—	—
SALINITY AREAS	—	—	30,720	—
RIPARIAN/AQUATIC AREAS	—	—	—	6,320
T&E SPECIES				
Escalante Canyon ACEC	—	—	—	1,895
Fairview RNA	—	—	—	377
WILDLIFE HABITAT				
Deer/elk winter range	—	66,110	—	—
RECREATION				
Needle Rock ONA	—	—	—	80
WILDERNESS				
Gunnison Gorge WSA	—	—	—	21,038
<b>TOTALS</b>	<b>354,485</b>	<b>66,110</b>	<b>30,720</b>	<b>29,710</b>

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### IMPACTS ON SOILS

#### *IMPACTS FROM PROPOSED MANAGEMENT ACTIONS*

**Impacts from Soils Management.** Minimizing soil disturbance on all surface-disturbing activities would decrease potential losses of soil productivity. Permitting soil and watershed projects within 312,489 acres, of which 17,806 acres have soils that are determined to be highly erodible, would allow for mitigation of soil erosion as problem areas develop.

**Impacts from Mineral Resources Management.** Surface-disturbing activities would decrease soil productivity through soil compaction, erosion, mixing of soil horizons, and reduced soil moisture retention capabilities. Coal development could result in soil productivity losses on less than 1,000 acres due to road and facility placement and increased soil slumping and mud flows.

Development of oil and gas leases on 685,616 acres, locatable minerals on 644,664 acres, and mineral materials on 451,315 acres would decrease soil productivity unless rehabilitation efforts are successful. Development of locatable minerals within 69,389 acres of easily eroded soils during critical soil moisture periods (March 1 through May 31) would decrease soil productivity over the long-term. Similar impacts would result from development of oil and gas leases and mineral material areas within 41,288 acres of these soils. Accidental fluid discharges during drilling operations could also contaminate soils.

**Impacts from Water Resources Management.** Seasonal restrictions on surface-disturbing activities and livestock forage utilization limits on 30,720 acres of highly saline soils (Management Unit D-5) would decrease erosion and increase soil productivity within these areas. Developing in-channel structures and land treatments on 22,314 of these acres would further protect soils from erosion.

**Impacts from Wildlife Habitat and Livestock Grazing Management.** Intensively managing 336,562 acres of "I" category grazing allotments would reduce soil compaction and erosion rates over the long-term in these areas if AMP objectives to increase ground cover are achieved. Permitting grazing during soil moisture periods (March 1 through May 31) and forage utilization greater than 35 percent on 38,953 acres of easily eroded soils would result in soil productivity loss within these areas. Eliminating grazing from March 20 to range readiness and increasing basal ground cover on 30,720 acres (Management Unit D-5), along with restricting forage utilization to 35 percent on 2,370 acres (Elephant Skin Wash area) would increase soil productivity and decrease long-term annual erosion rates by up to three tons per acre in these areas.

Short-term erosion would increase by one to ten times present levels on vegetation treatments designed to increase wildlife and livestock forage. Soil productivity would surpass present levels over the long-term if treatments increase basal ground cover.

**Impacts from Forest Management.** Road construction and surface disturbance from harvest activities would result in increased erosion. Erosion would decrease over time if harvests result in an increase in basal ground cover. Harvesting activities during critical soil moisture periods on 13,582 acres of easily eroded soils would result in moderate increases in erosion and decreases in soil productivity.

**Impacts from Recreation Management.** Managing 24,552 acres for ORV recreation opportunities would result in long-term erosion within these areas. Soils within a 19,957-acre portion of these ORV recreation areas are determined to be highly erodible. ORV-derived erosion would increase as more ORV enthusiasts become aware of and utilize these areas.

Construction of trails, ski runs, and other facilities in the Storm King Peak area would increase long-term erosion and compaction of soils on 1,520 acres. This development would also have a high potential for causing soil mass-wasting areas (soil slumps and mud flows).

**Impacts from Off-Road Vehicle Management.** Not permitting ORV use on 18 percent of the planning area would protect these areas from ORV-derived erosion and other soil disturbance. Managing 54 percent of the planning area as open to ORV use would allow for decreased soil productivity as soils are disturbed and vegetation is trampled. Soil productivity losses would be greatest from ORV use on 25,336 acres of highly erodible soils. Seasonal ORV restrictions would partially protect soils on 135,396 acres from ORV-derived erosion during some of the soil moisture periods when soils are most vulnerable to damage.

**Impacts from Major Utility Development.** Managing 301,066 acres as open to development of major utility facilities would allow for increased soil disturbance due to construction and maintenance activities. Soil productivity losses would be greatest from these activities during critical soil moisture periods (March 1 through May 31) on 25,277 acres of highly erodible soils. Seasonal restrictions on these activities would partially protect 30,224 acres of highly erodible soils during portions of the critical soil moisture periods when soils are most vulnerable to damage.

**Impacts from Fire Management.** Management for both planned and natural prescribed burning on 169,930 acres would allow for vegetation type conversion from pinyon-juniper woodlands to a more soil-protective grass and forb plant community. Fire suppression activities (fire lines, ORV use) could decrease soil productivity by removing protective vegetation and increasing erosion and compaction. The

## PREFERRED ALTERNATIVE IMPACTS

overall net deterioration of soils would depend on site-specific variables.

### *CUMULATIVE IMPACTS ON SOILS*

Under this alternative, soil conditions would be anticipated to improve slightly throughout the entire planning area. Intensive management of salinity areas and grazing allotments would benefit soil conditions within these areas. Intensive management would be especially beneficial on 39,000 acres of highly erodible soils. Permitting soil and watershed projects within 312,489 acres would allow for mitigation of soil erosion as problem areas develop.

Mineral activities, forest and woodland product harvests, livestock grazing on 38,953 acres, and ORV use would result in decreased soil productivity in portions of the planning area. This productivity loss would be most pronounced on 25,000 acres of highly erodible and saline soils where few watershed-protective measures would be implemented.

## IMPACTS ON WATER RESOURCES

### *IMPACTS OF PROPOSED MANAGEMENT ACTIONS*

**Impacts from Water Resources Management.** Seasonal restrictions on surface-disturbing activities and livestock forage utilization limits on 30,720 acres of highly saline soils (Management Unit D-5) would reduce salinity and sediment levels in local surface waters and assist in reducing salinity levels within the Upper Colorado River Basin. Developing in-channel structures and land treatments on 22,314 of these acres would further protect surface waters from salinization and sedimentation.

Permitting watershed projects within an additional 312,489 acres would allow for mitigation of water quality deterioration as problem areas develop. Of these areas, 17,806 acres are within highly erodible and saline soil areas.

**Impacts from Coal Management.** Coal leasing and development would result in increased sediment yields from roads, mine facilities, or other surface-disturbing activities. Mine discharges and spoil-pile runoff could increase salt levels in local surface water systems. Overburden fracturing and subsidence from underground mining could result in loss of ground water quantity and quality. Loss of either surface or ground water could adversely affect adjudicated water rights. These impacts would be less pronounced within riparian corridors where mining would be restricted to protect riparian habitat.

**Impacts from Oil, Gas, and Geothermal Resources Management.** Identifying 685,696 acres as acceptable for oil and gas leasing could result in both surface and ground water impacts. Construction of roads and drilling pads would

increase sediment and salinity yields in local surface waters. These impacts would be most pronounced on 41,288 acres of easily eroded and/or high salinity soils as oil and gas operations would be permitted during the critical wet soil period (March 1 through May 31) when these soils are most vulnerable to damage. Accidental fluid discharges during drilling operations could contaminate surface water.

**Impacts from Locatable Minerals Management.** Identifying 96 percent of the planning area as open to mineral entry and location could result in water quality degradation. Road construction and other mine-related disturbance would increase sediment and salinity loads in local surface waters. These impacts would be greatest from placer mining operations. All operations could result in heavy metal contamination from mine water discharges and spoil-pile runoff.

**Impacts from Mineral Materials Management.** Managing 94 percent of the planning area as open to disposal of mineral materials would impact water resources. Road construction and extraction of mineral materials would increase sediment and salt loads in local surface waters. These increased sediment and salt loads would be most pronounced from mineral material activities on 41,288 acres of easily eroded soils during critical wet soil periods (March 1 through May 31).

Mineral material operations in close proximity to perennial water courses would have the potential of destabilizing and altering natural stream channels and disrupting the beneficial values of floodplains. These impacts could result in alteration of water tables and surface water flows and could increase the destructiveness of floods.

**Impacts from Riparian/Aquatic Systems Management.** Managing riparian zones and aquatic habitat on 6,320 acres to improve vegetation condition, streambank cover, and aquatic diversity would result in reduced sediment yields and streambank erosion and improved chemical water quality. Closing seven miles of roads in the Potter Creek and Dry Fork of Escalante Creek drainages would reduce sediment loads in these areas.

**Impacts from Wildlife Habitat Management.** Soil disturbances from chainings and other vegetation treatments scattered over 300,527 acres would cause short-term sediment yield increases. Successful land treatments would reduce sediment yields and improve overall erosion conditions over the long-term.

**Impacts from Livestock Grazing Management.** Intensively managing 336,562 acres as "I" category grazing allotments would result in lower sediment yields if AMP objectives to increase ground cover are achieved. Short-term sediment yield increases would be expected from vegetation treatments. Sediment yields are not expected to

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change on 113,850 acres that are not within intensively managed allotments.

Permitting grazing during wet soil periods (March 1 through May 31) and forage utilization greater than 35 percent on 38,954 acres of easily eroded and highly saline soils would result in sediment and salinity yields far above normal. Eliminating grazing from March 20 to range readiness and increasing basal ground cover on 28,090 acres, and restricting forage utilization to 35 percent on 2,370 acres (Elephant Skin Wash area) of easily eroded and highly saline soils would reduce sediment and salt yields from these areas. Eliminating grazing from March 1 to May 15, restricting forage utilization to 35 percent, and restricting livestock trailing on 6,320 acres of riparian/aquatic areas would result in reduced sediment yields and streambank erosion and improved water quality on 70 stream miles.

**Impacts from Forest Management.** Road construction and surface disturbance from harvest activities would result in increased sediment yields. Sediment yields would decrease over time if harvests result in an increase in basal ground cover. Harvesting activities during wet soil periods on 13,582 acres of easily eroded soils would result in moderate increases in surface water sedimentation.

**Impacts from Recreation Management.** Managing 24,552 acres for recreational ORV use would increase sediment and salt yields from these easily eroded and highly saline soil areas. Managing 1,520 acres in the Storm King Peak area for possible ski area development would allow for surface disturbances and subsequent sedimentation of surface water due to construction of roads, facilities, and ski-runs.

**Impacts from Off-Road Vehicle Management.** Not permitting ORV use on 18 percent of the planning area would protect these areas from ORV-derived sedimentation. Managing 54 percent of the planning area as open to ORV use would allow for increased sediment loads as soils are disturbed and vegetation is trampled. Water quality deterioration would be greatest from ORV use on 25,336 acres of highly erodible and saline soils. Seasonal ORV restrictions on 135,396 acres would partially protect these areas from ORV-derived sedimentation during wet soil periods when soils are most vulnerable to damage.

**Impacts from Major Utility Development.** Managing 301,066 acres as open to development of major utility facilities would allow for increased sediment loads due to construction and maintenance activities. Water quality deterioration would be greatest from these activities at stream crossings and during wet soil periods (March 1 through May 31) on 25,277 acres of highly erodible and saline soils. Seasonal restrictions on construction and major maintenance activities would partially protect 30,224 acres of highly erodible and saline soils from disturbance during wet soil periods when these soils are most vulnerable to damage.

**Impacts from Fire Management.** Management for both planned and natural prescribed burning on 169,930 acres would allow for vegetation type conversion from pinyon-juniper woodlands to a more watershed-protective grass and forb plant community. Fire suppression activities (fire lines, ORV use) could decrease watershed productivity by removing protective vegetation and increasing erosion and sedimentation. The overall net deterioration of watershed conditions would depend on site-specific variables.

### *CUMULATIVE IMPACTS ON WATER RESOURCES*

Under this alternative, a slight improvement in water resources would be anticipated throughout the entire planning area. Intensive management of salinity areas, riparian zones, aquatic habitats, and grazing allotments would benefit the hydrologic condition of water courses and improve the chemical and physical properties of surface waters. Intensive management would be especially beneficial on 39,000 acres of highly erodible and saline soils.

Mineral activities, forest and woodland product harvests, livestock grazing on 38,954 acres, and ORV use would result in increased sediment and salt yields in portions of the planning area. These increased yields would be most pronounced on 25,000 acres of highly erodible and saline soils where few watershed-protective measures would be implemented.

### **IMPACTS ON RIPARIAN ZONES**

#### *IMPACTS FROM PROPOSED MANAGEMENT ACTIONS*

**Impacts from Riparian Zone Management.** Intensively managing 6,320 acres of riparian zones would improve vegetation cover, composition, density, and diversity. Overall improvement to fair or good vegetation condition could be expected over the short-term.

**Impacts from Mineral Resources Management.** Approximately 4,000 acres of riparian zones would be opened to mineral exploration if withdrawals are lifted. Road construction, facility development, dredging operations, and other surface-disturbing activities in riparian zones would remove riparian vegetation, compact the soil, and could redirect subsurface water.

**Impacts from Soils and Water Resources Management.** Water impoundment projects would improve conditions necessary for establishment of riparian vegetation. This could potentially increase riparian zones by 100 to 200 acres over the long-term.

**Impacts from Wildlife Habitat Management.** Development of in-channel structures designed to improve aquatic habitat would stabilize riparian vegetation and enhance its quality.

## PREFERRED ALTERNATIVE IMPACTS

**Impacts from Livestock Grazing Management.** Restricting livestock utilization to 35 percent on 6,320 acres of riparian zones and intensively managing grazing use on 5,125 acres of riparian zones would improve vegetation density, diversity, and stability over the next ten years.

**Impacts from Forest Management.** Road and facility construction and other surface-disturbing activities in riparian zones would remove riparian vegetation. An estimated 60 to 100 acres of riparian vegetation would be degraded over the next ten years.

**Impacts from Recreation Management.** Recreational ORV activities in the North Delta ORV use area would eliminate riparian vegetation. Riparian vegetation on 35 acres in the Gunnison Forks area would be severely impacted by trampling and vehicle use.

**Impacts from Off-Road Vehicle Management.** Restricting vehicle use to designated roads and trails on 6,320 acres of riparian zones would improve vegetation condition and eliminate rutting and soil compaction.

**Impacts from Major Utility Development.** Eliminating riparian zones as possible locations of utility facilities would protect these areas and maintain their present conditions.

### *CUMULATIVE IMPACTS ON RIPARIAN ZONES*

Direct and indirect intensive management under this alternative would result in improved vegetation conditions on 6,500 acres of riparian zones.

### **IMPACTS ON THREATENED AND ENDANGERED SPECIES**

#### *IMPACTS FROM PROPOSED MANAGEMENT ACTIONS*

**Impacts from Threatened and Endangered Species Management.** Designation of 1,895 acres in Escalante Canyon as an Area of Critical Environmental Concern (ACEC) would provide protection from some surface-disturbing activities for the Uinta Basin hookless cactus (threatened), the Grand Junction milkvetch (candidate), the Delta lomatium (sensitive), and three unique plant associations. Opportunities for research and special studies of the plant associations would be expanded. Designation of 377 acres east of Montrose as a Research Natural Area (RNA) would protect populations and habitats of clay-loving wild buckwheat and Montrose penstemon, from some surface-disturbing activities. Pre-disturbance inventories area-wide would add substantially to the data base for all threatened and endangered species. Some inadvertent destruction of individual plants would occasionally occur.

**Impacts from Mineral Resources Management.** Removing the no surface occupancy stipulation on 140 acres of potential threatened and endangered species habitat would

increase the probability of inadvertent destruction of threatened and endangered plant species and would displace some bald eagles from their wintering habitat. The Uinta Basin hookless cactus, the Grand Junction milkvetch, and the Delta lomatium would be affected. Lifting mineral withdrawals on the lower Gunnison River and allowing surface-disturbing activities would reduce the value of 6,680 acres as wintering bald eagle habitat. Possible disturbance could affect 21,633 acres of potential endangered, threatened, candidate, and sensitive plant species habitat.

**Impacts from Soils and Water Resources Management.** In-channel structures and land treatment projects would be slightly beneficial to bald eagles and peregrine falcons. Impoundments and resulting increases in vegetation cover would improve the habitat of these raptors' prey base.

**Impacts from Riparian/Aquatic Systems Management.** Improvement of the riparian zones along Roubideau and Escalante creeks and in the North Fork Valley would improve peregrine falcons' and wintering bald eagles' prey base habitat.

**Impacts from Wildlife Habitat Management.** Continued management of the Gunnison Forks HMP area would maintain existing bald eagle and river otter habitat. Peregrine falcons would be expected to increase their use of the area over the long-term. Waterfowl habitat improvement and associated land acquisition could provide migrating whooping cranes, long-billed curlews, and white-faced ibis with additional protected habitat and stop-over points.

**Impacts from Livestock Grazing Management.** Some localized disturbance and destruction of individual threatened and endangered plants would occur due to livestock trampling.

**Impacts from Recreation Management.** Development of the North Delta ORV use area would seriously accelerate destruction of the Uinta Basin hookless cactus and potential habitat of clay-loving wild buckwheat and Delta lomatium on 8,942 acres. Decreasing river use in the Gunnison Gorge would improve river otter habitat through decreased destruction of riparian vegetation. Bighorn sheep and peregrine falcons would benefit from reduced human disturbance in the gorge.

**Impacts from Off-Road Vehicle Management.** Closing approximately 29,821 acres of potential threatened and endangered plant species habitat to ORV use and restricting vehicle use to designated roads and trails would eliminate potential destruction and damage of the Uinta Basin hookless cactus, spineless hedgehog cactus, Montrose penstemon, Grand Junction milkvetch, and clay-loving wild buckwheat.

**Impacts from Wilderness Management.** Management of 21,038 acres under wilderness guidelines would protect potential habitat of threatened and endangered plant and

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animal species from any mechanical disturbance. Habitat values would be maintained or improved.

**Impacts from Disposal of Public Lands.** Disposing of 3,890 acres of Mancos shale could reduce management of potential habitat for Delta lomatium, Uinta Basin hookless cactus, Montrose penstemon, and clay-loving wild buckwheat. Probable populations of clay-loving wild buckwheat would be lost from 360 acres in T. 48 N., R. 9 W., Sec. 11, and T. 48 N., R. 8 W., Sec. 7. Habitat suitable for and used by whooping cranes and greater sandhill cranes would be lost if disposal of public lands around the Fruitgrowers, Crawford, and Gould reservoirs occurs.

### *CUMULATIVE IMPACTS ON THREATENED AND ENDANGERED SPECIES*

The research potential and study opportunities of several threatened and endangered species and unique plant associations would be protected with special designations. There would be a loss of 10,000 acres of potential habitat for the Uinta Basin hookless cactus and Delta lomatium due to recreational ORV use.

## IMPACTS ON TERRESTRIAL WILDLIFE HABITAT

### *IMPACTS FROM PROPOSED MANAGEMENT ACTIONS*

**Impacts from Wildlife Habitat Management.** Forage allocations for big game species on public land would meet both short-term and long-term demands.

Crucial deer and elk winter range management and land treatment projects would improve distribution, reduce stress, and decrease big game utilization of adjacent private lands. Minimizing disturbance in elk calving areas would reduce fetal mortality and increase calf survival.

Bighorn sheep habitat and herd management in the Gunnison Gorge area would potentially increase the population to 300 individuals by 1997. A small herd of bighorn sheep could be established in the Roubideau Canyon/Camel Back area.

Waterfowl production on the lower Gunnison River would increase by up to 50 percent.

**Impacts from Mineral Resources Management.** Road and portal construction and other surface-disturbing activities associated with mineral development would reduce crucial deer and elk winter range in the North Fork area by 500 acres. Seasonal restrictions on oil and gas activity on 140,181 acres of crucial deer and elk winter range would lessen stress on deer and elk, thereby reducing mortality and fetal loss and improving overall condition and health of the herds.

Lifting mineral withdrawals on 61,270 acres of habitat would increase surface disturbance. Raptor hunting habitat and some nesting areas would be lost. Habitat for other birds, including Lewis' woodpeckers, western bluebirds, and Scott's orioles, would possibly be reduced due to coal development.

**Impacts from Soils and Water Resources Management.** In-channel structures and resultant impoundments would provide habitat for waterfowl, chukars, mourning doves, mule deer, and non-game species.

**Impacts from Riparian/Aquatic Systems Management.** Restoring and protecting 6,320 acres of riparian zones would provide additional forage and cover for big game, waterfowl, and non-game birds and animals. The prey base for raptors and other predators would be improved.

**Impacts from Livestock Grazing Management.** Development of grazing systems, land treatment projects, and improved livestock management practices would improve forage conditions, reduce competition between livestock and big game, and improve distribution of most big game species. Eliminating livestock grazing use on approximately 30,720 acres during the spring would improve big game forage at a time when food reserves are low and females are pregnant. Improved nutrition may result in heavier birthweights and more successful reproduction. Land treatment projects designed to reduce sagebrush cover to less than 20 percent would eliminate present and potential sage grouse habitat in the Simms Mesa and Fruitland Mesa areas.

**Impacts from Forest Management.** Woodland harvests would provide temporary openings in forest stands, increasing edge effect and big game forage. The removal of old-growth timber would reduce thermal and hiding cover for big game and eliminate some nesting habitat for cavity-nesting birds. Woodland harvests could occur during the winter on 28,500 acres of crucial deer and elk winter range. On an annual basis, deer and elk would be displaced from 80 to 100 acres of active cutting area and adjacent habitat.

**Impacts from Recreation Management.** Restricting river use in the Gunnison Gorge would encourage continued expansion of the bighorn sheep population and prevent some degradation of riparian habitat for non-game species. Encouraging recreational and competitive ORV use in the North Delta area would curtail antelope utilization of the area, reducing antelope range by 8 percent. ORV use in the area would increase harassment of game and non-game wildlife and would displace prairie dog populations.

**Impacts from Off-Road Vehicle Management.** Closing 29,821 acres to vehicle use would eliminate disturbances or harassment of wildlife. Restricting vehicle use to designated roads and trails in crucial deer and elk winter range would reduce habitat loss. Seasonal ORV use

## PREFERRED ALTERNATIVE IMPACTS

restrictions in crucial deer and elk winter range would reduce stress on big game species, thereby reducing fetal mortality and losses from poaching, and permitting wildlife utilization of the entire area.

**Impacts from Major Utility Development.** Confining development of major utility facilities in the North Fork area to existing corridors along major roads would limit disturbance and stress on all wildlife species. Prohibiting development of utility facilities on 75,255 acres would prevent short-term disturbances and long-term wildlife habitat modifications due to road construction and use. Bighorn sheep would benefit greatly from exclusion of utilities in the Gunnison Gorge and Camel Back areas.

**Impacts from Disposal of Public Lands.** Disposal of 10,387 acres of crucial deer and elk winter range and an additional 2,054 acres of non-crucial winter range would result in the loss of habitat for 100 elk and 50 deer and would increase big game pressure on adjacent private lands. Disposing of 640 acres of summer deer and elk habitat on Baldy Peak could cause displacement of some animals. Disposal of 1,364 acres of antelope range would result in an approximate one percent reduction in herd size. Disposal of 600 acres of waterfowl and shorebird habitat could affect nesting and migrating populations. Disposal of tracts providing prairie dog habitat could affect potential occurrences of burrowing owls. Habitat for band-tailed pigeons, Cooper's hawks, goshawks, flammulated owls, and other non-game species would be affected.

**Impacts from Acquisition of Non-Federal Lands.** Acquiring non-federal lands in crucial deer and elk winter range would increase habitat and potential big game populations, and reduce wildlife conflicts and impacts on adjacent private lands. Acquiring non-federal lands for waterfowl habitat management would increase waterfowl populations on public lands.

**Impacts from Acquisition of Access.** Acquiring public access would improve big game harvests and population control practices.

**Impacts from Fire Management.** Natural and planned prescribed fires would reduce closed brush and tree canopies, stimulate plant growth and vigor, and temporarily improve forage palatability, resulting in improved habitat for many wildlife species. Large wildfires would reduce effective screening and thermal cover for deer and elk use.

### *CUMULATIVE IMPACTS ON TERRESTRIAL WILDLIFE HABITAT*

Increased coal development and disposal of public lands in crucial deer and elk winter ranges in combination with the loss of habitat on private lands would be offset by improvement of habitat conditions throughout the planning area. Present big game populations would be maintained;

small game and non-game populations and habitats would be improved.

## IMPACTS ON AQUATIC WILDLIFE HABITAT

### *IMPACTS FROM PROPOSED MANAGEMENT ACTIONS*

**Impacts from Wildlife Habitat Management.** Structures placed in Escalante, Cottonwood, Monitor, Potter, and Jay creeks would improve pool:riffle ratios, stabilize streambanks, increase instream cover, and reduce channelization, streambank erosion, and sedimentation. Approximately 30 stream miles of aquatic habitat would be improved. Managing approximately 52 stream miles on public land associated with Terror, Escalante, Monitor, Criswell, Potter, and Dry creeks would stabilize streambanks, increase instream cover, and reduce sedimentation. Limiting surface-disturbing activities on aquatic habitat would increase streambank cover, improve bank stability and water quality, and reduce soil compaction, sedimentation, and siltation. Land treatment projects in or near stream channels would increase sedimentation over the short-term and decrease it over the long-term.

**Impacts from Mineral Resources Management.** Road and pipeline development and other surface-disturbing activities would lead to increased sedimentation and streambank instability on 25 stream miles of aquatic habitat. Site-specific approval of surface-disturbing activities in aquatic areas could result in slight to moderate increases in sedimentation, water temperatures, and streambank erosion.

**Impacts from Soils and Water Resources Management.** In-channel structures designed to reduce sedimentation and salinity would improve aquatic habitat on streams below these structures.

**Impacts from Riparian/Aquatic Systems Management.** Improved riparian management on 6,320 acres of public land would result in improvement of 40 stream miles of aquatic habitat. Streambank stability, sedimentation, and water temperatures would benefit from improved streambank cover.

**Impacts from Livestock Grazing Management.** Intensive grazing management on 60 stream miles of aquatic habitat combined with a 35 percent utilization of key forage species limitation would improve streambank stability and cover. Sedimentation would decrease and water temperatures would stabilize. The existing condition would be maintained on the balance of the aquatic habitat. Land treatment projects in or near stream channels would increase sedimentation over the short-term and decrease it over the long-term.

## CHAPTER FOUR

**Impacts from Forest Management.** Road construction across aquatic areas could cause increased sedimentation, bank degradation, and water temperatures, and decreased streambank cover.

**Impacts from Recreation Management.** Restricting river use in the Gunnison Gorge to six group encounters per day would improve streambank vegetation and water quality and reduce sedimentation. Aquatic habitat in the Gunnison Forks area would continue to be degraded due to trampling and intensive recreational use.

**Impacts from Off-Road Vehicle Management.** Closing areas to ORV use, imposing seasonal restrictions on ORV use, and restricting vehicle use to designated roads and trails in riparian zones should improve streambank stability and reduce sedimentation. The areas remaining open to ORV use would be subject to degradation.

**Impacts from Major Utility Development.** Short-term impacts caused by road construction, clearings for powerline pads, and pipelines would result in slight to moderate adverse impacts on aquatic and riparian habitat. Loss of vegetation, streambank deterioration, sedimentation, and erosion would cause localized impacts on aquatic/riparian organisms and habitat. Prohibiting or seasonally restricting surface-disturbing activities that would have long-term adverse effects on riparian/aquatic systems would, at the minimum, maintain current habitat quality.

### *CUMULATIVE IMPACTS ON AQUATIC WILDLIFE HABITAT*

Approximately 140 stream miles of aquatic wildlife habitat would improve under management emphasizing habitat quality and protection. Eliminating or reducing surface-disturbing activities and limiting livestock grazing utilization to 35 percent in riparian zones would have the greatest overall beneficial effect.

## IMPACTS ON LIVESTOCK GRAZING

### *IMPACTS FROM PROPOSED MANAGEMENT ACTIONS*

**Impacts from Livestock Grazing Management.** Not allocating additional forage for livestock use on 71,132 acres would reduce present grazing preferences by the 3,380 AUMs currently in suspension. Land treatment projects and grazing management would increase forage allocations for livestock by 1,424 AUMs.

**Impacts from Soils and Water Resources Management.** Limiting livestock utilization to 35 percent of key forage species on 30,720 acres would reduce livestock allocations by 589 AUMs on 12 grazing allotments. Eliminating livestock grazing on 30,720 acres from March 20 to range readiness could shift some livestock use to the

fall, resulting in increased conflicts between livestock grazing and hunting use, higher mortality from disease due to longer spring confinement, increased trailing use, and decreased hay production due to livestock use of base property hay lands for a longer period in the spring. Additional forage would become available over the long-term due to reduced spring use. In-channel structures and land treatment projects designed to reduce erosion and salinity would improve livestock distribution and increase available forage.

**Impacts from Riparian/Aquatic Systems Management.** Limiting livestock utilization to 35 percent of key forage species on 6,320 acres of riparian vegetation would reduce livestock allocations by approximately 200 AUMs on seven grazing allotments. Eliminating livestock grazing on 6,320 acres from March 1 through May 15 could shift some livestock use to the fall, resulting in increased conflicts between livestock grazing and hunting use, higher mortality from disease due to longer spring confinement, increased trailing use, and decreased hay production due to livestock use of base property hay lands for a longer period in the spring. Reduced trailing use through riparian zones could increase trailing time and operating costs and require more corrals.

**Impacts from Wildlife Habitat Management.** Developing new land treatment projects and maintaining existing projects would improve livestock distribution and enhance maintenance of existing livestock forage allocations in treatment areas.

**Impacts from Forest Management.** Forest and woodland harvests would increase forage available for livestock grazing use in most harvested areas. Improved access and thinning would improve livestock distribution. Precluding any development or maintenance of land treatment projects on 47,384 acres would result in a 10 percent loss of forage (1,087 AUMs) over the long-term.

**Impacts from Recreation Management.** Restricting fencing in portions of the Gunnison Gorge SRMA could preclude the possibility of changing the livestock class from sheep to cattle and could eliminate opportunities to use fencing to improve livestock distribution.

**Impacts from Off-Road Vehicle Management.** Limiting vehicle use on grazing areas through closures or restrictions would improve livestock forage, decrease livestock harassment, and reduce management problems created by ORV use.

**Impacts from Disposal of Public Lands.** Disposing of 17,485 acres of public land that is currently grazed by livestock would eliminate a total of 981 AUMs on six "M" category, one "I" category, and 32 "C" category grazing allotments, and would reduce livestock allocations by a total of 478 AUMs on eight "M" category, 13 "I" category, and eight "C" category grazing allotments.

## PREFERRED ALTERNATIVE IMPACTS

**Impacts from Acquisition of Access.** Acquisition of public access would improve administration of the livestock grazing program but could result in increased livestock harassment and vandalism of livestock facilities.

**Impacts from Fire Management.** Available forage and species diversity would improve on 169,930 acres of public land where fires meeting pre-determined prescriptions would be permitted. Fires could cause some damage to livestock facilities (fences, catchments, and corrals).

### *CUMULATIVE IMPACTS ON LIVESTOCK GRAZING*

A net loss of 6,344 AUMs would occur over the long-term, due primarily to disposal of public lands and a 35 percent utilization limit on riparian and salinity emphasis areas. Increased livestock operator costs and increased conflicts with recreational users would occur. The demand for livestock forage would probably not be met over the long-term.

## IMPACTS ON FORESTRY

### *IMPACTS FROM PROPOSED MANAGEMENT ACTIONS*

**Impacts from Forest Management.** Intensive management of 24,255 acres of suitable pinyon-juniper woodlands would result in potential annual harvests of 1,213 cords of fuelwood. Suitable commercial forest lands on 3,127 acres would produce 160.5 MBF of timber annually. Harvest of 123 acres of suitable commercial forest on 160 acres of land owned by the Girl Scouts of America would be precluded.

**Impacts from Mineral Resources Management.** Road, pad, and portal construction and other surface-disturbing activities associated with mineral development would reduce suitable woodlands and commercial forest lands to a limited degree. Road construction could improve access into several potential sale areas, thereby reducing costs associated with forest harvest.

**Impacts from Riparian/Aquatic Systems Management.** Eliminating 482 acres of suitable woodlands within riparian/aquatic systems from harvest would reduce annual fuelwood production by 24 cords. Eliminating 32 acres of commercial forest lands from harvest would reduce timber production by 2.5 MBF.

**Impacts from Threatened and Endangered Species Management.** Eliminating 116 acres of suitable woodlands within the Escalante Canyon RNA from harvest would reduce fuelwood production by six cords annually.

**Impacts from Wildlife Habitat Management.** Maintaining existing land treatment projects on 600 acres of pinyon-juniper woodlands would reduce annual fuelwood harvests by 30 cords. Restricting timber harvests on 2,565

acres in the Storm King/High Park area would increase the stand rotation from 120 to 200 years.

**Impacts from Livestock Grazing Management.** Managing 17,314 acres of suitable pinyon-juniper woodlands for increased forage production could reduce fuelwood harvests by 866 cords annually.

**Impacts from Recreation Management.** Eliminating 1,311 acres of woodlands within the Gunnison Gorge SRMA from harvest would reduce annual fuelwood harvests by 66 cords. If the Storm King Peak ski area is developed, 1,281 acres of suitable commercial forest lands would be eliminated from harvest, reducing annual timber production by 95 MBF.

**Impacts from Wilderness Management.** Annual harvests of 17 cords of fuelwood would be precluded on 337 acres of woodlands which would be included in designated wilderness areas. The effect on the total forestry program would be minor.

**Impacts from Disposal of Public Lands.** Disposal of 1,471 acres of suitable woodlands would preclude potential fuelwood harvests and reduce annual production by 74 cords. Disposal of 403 acres of suitable commercial forest lands would reduce annual timber harvests by 30 MBF.

**Impacts from Acquisition of Access.** Acquiring access into the 11 identified areas would allow harvesting on 1,606 acres of commercial forest lands and on 2,040 acres of pinyon-juniper woodlands.

**Impacts from Fire Management.** Maximum fire protection in the Storm King, High Park, and North Fork areas would protect 36,800 MBF of commercial timber. Minimum fire protection in the pinyon-juniper woodlands would result in only minor losses estimated at approximately nine cords per acre burned.

### *CUMULATIVE IMPACTS ON FORESTRY*

Multiple-use needs would eliminate sustained yield production on 21,631 acres of suitable woodlands, resulting in an annual loss of 1,083 cords of fuelwood. Harvest on 558 acres of suitable commercial forest lands would be precluded, resulting in an annual loss of 41.5 MBF of timber. If the ski area is developed, an additional 95 MBF of commercial timber would be lost annually from 1,281 acres. Intensive management of the forest resource would result in an annual harvest of 160.5 MBF of timber from 3,127 acres of suitable commercial forest lands (including the ski area site), and 1,213 cords of fuelwood from 24,255 acres of suitable woodlands.

## CHAPTER FOUR

### IMPACTS ON RECREATION

#### *IMPACTS FROM PROPOSED MANAGEMENT ACTIONS*

**Impacts from Recreation Management.** Under this alternative, recreationists would benefit significantly from management of the variety of recreation opportunities available within the planning area. Managing 40,872 acres (Management Units D-4 and D-14) for recreation would protect scenic values and increase recreation opportunities in these areas.

If the demand exists during the first five years of RMP implementation, management of 1,520 acres in the Storm King Peak area for potential downhill ski development would increase the availability of public lands for this type of recreational use.

Designating 1,895 acres within Escalante Canyon as an ACEC would protect the scenic qualities of this valued recreational resource and allow for increased management of the "Potholes" swimming area. Managing the 8,942-acre North Delta ORV use area and 15,610 acres within the Gunnison Gorge SRMA as open to ORV use would accommodate long-term recreational ORV demands. Developing river access at the Escalante Bridge would facilitate boating use on the lower Gunnison River.

Limiting boating use in the Gunnison Gorge to a maximum of six group encounters per day would be highly beneficial to recreationists seeking scarce wilderness boating experiences. No Colorado rivers are managed for wilderness experiences. Recreation demand on the six designated wilderness rivers (273 river miles) in the continental United States exceeds the number of use permits available annually. As competition for river-use permits in the Gunnison Gorge exceeds allocations, private and commercial users would experience inconvenience in trip planning and increased possibilities of not obtaining a permit.

**Impacts from Mineral Resources Management.** Withdrawing the 80-acre Needle Rock ONA from mineral entry and location would protect this predominantly natural and scenic feature from mineral activity disturbances. Revoking all portions of the BLM protective withdrawal (8,446 acres) and the BOR Fruitland Mesa withdrawal (1,235 acres) located within the Gunnison Gorge SRMA would allow for mineral activities in these areas. These activities would degrade recreation opportunities in predominantly natural areas that are accessed by primitive roads.

**Impacts from Salinity Control Management.** Limiting vehicle use within the Elephant Skin Wash area to designated roads and trails would reduce the lands available for recreational ORV use by 2,370 acres. This area is presently utilized and preferred for ORV recreation.

**Impacts from Riparian/Aquatic Systems Management.** Protecting and enhancing 6,320 acres of riparian/aquatic systems would benefit recreationists seeking scenic and educational opportunities within this diverse wildlife community.

**Impacts from Wildlife Habitat Management.** Management of the Gunnison Forks and Billy Creek habitat management areas, deer and elk winter ranges, elk calving areas, and waterfowl habitats would enhance opportunities for hunting, fishing, and wildlife observation.

**Impacts from Livestock Grazing Management.** Recreational ORV opportunities would be protected by not permitting placement of livestock facilities that would create safety hazards or impede vehicle use on 8,942 acres.

**Impacts from Forest Management.** Prohibiting woodland harvests in the Escalante Canyon ACEC and on all but 1,255 acres of the Gunnison Gorge SRMA would protect scenic and predominantly natural recreation settings.

**Impacts from Off-Road Vehicle Management.** Closing the Gunnison Gorge WSA, the Needle Rock ONA, and the Escalante Canyon ACEC to ORV use would ensure continued availability of high quality and non-motorized recreation settings in these areas. Restricting vehicle use to designated roads and trails on 25,182 acres of the Gunnison Gorge SRMA would protect the scenic values of these recreation lands. Managing 24,552 acres for recreational ORV use would accommodate long-term ORV use demands and would decrease pressure on areas under ORV use restrictions.

**Impacts from Cultural Resources Management.** A Class III cultural resource inventory would benefit recreationists by identifying cultural sites with public educational values.

**Impacts from Visual Resources Management.** Protecting scenic qualities of the Gunnison Gorge WSA and Needle Rock ONA (VRM Class I) and 15,208 acres of the Gunnison Gorge SRMA (VRM Class II) would ensure continued availability of high quality scenic resources in these areas.

**Impacts from Wilderness Management.** Designating 21,038 acres within the Gunnison Gorge as wilderness would protect wilderness recreation opportunities in this area.

**Impacts from Major Utility Development.** Management of 61,327 acres of recreation and wilderness areas as closed to development of major utility facilities would protect high quality recreation settings. Managing 2,478 acres of the Gunnison Gorge SRMA in the Smiths' Mountain and Gunnison Forks areas as open to development of major utility facilities would allow for potential deterioration of natural settings within these areas.

## PREFERRED ALTERNATIVE IMPACTS

**Impacts from Acquisition of Non-Federal Lands.** Acquiring 2,200 acres within or contiguous to the Gunnison Gorge SRMA would protect recreation settings, provide more public access, and reduce conflicts between recreationists and private landowners.

**Impacts from Acquisition of Access.** Acquiring public access along the Gunnison Gorge rim southwest of the Gunnison Forks area and from Colorado Highway 92 to the Gunnison River in the Austin area would provide access to high value recreation lands and facilitate recreation opportunities.

### CUMULATIVE IMPACTS ON RECREATION

Recreation opportunities would be significantly enhanced and increased under this alternative. A total of 74,267 acres would be managed for a wide variety of recreation opportunities including but not limited to river boating, ORV use, downhill skiing, wilderness experiences, back country travel, hunting, fishing, and scenic viewing. Revoking the BLM protective withdrawal within the Gunnison Gorge SRMA (8,446 acres) and permitting major utility development in the Smiths' Mountain and Gunnison Forks areas would result in deterioration of recreation values if these lands are developed.

### IMPACTS ON CULTURAL RESOURCES

#### IMPACTS FROM PROPOSED MANAGEMENT ACTIONS

**Impacts from Cultural Resources Management.** Cultural clearances of areas proposed for disturbance would contribute to the cultural data base, decrease cultural site disturbances, and increase the potential for discovery of sites eligible for inclusion to the National Register of Historic Places. Class III inventories on 5,848 acres would significantly add to the cultural data base. High-value cultural sites on these acres could be protected by special designations.

**Impacts from Off-Road Vehicle Management.** Exposed cultural resources would remain vulnerable to vehicle-related damage on 82 percent of the planning area that would be open to ORV use for all or portions of the year. Cultural resources would also remain vulnerable to vandalism and illegal artifact collection by individuals using vehicles for easy access and transport of artifacts.

**Impacts from Wilderness Management.** Designation of the Gunnison Gorge WSA (21,038 acres) as wilderness would generally benefit cultural resources. The integrity of these resources would be protected as no potential would exist for removal of cultural resources as mitigation for surface-disturbing activities.

Gaining knowledge of cultural resources would be impeded as site excavations would not be permitted in most instances. Field surveys, normally required during environmental analyses of proposed surface-disturbing activities, would also be eliminated as a data source. As stabilization would not normally be permitted, exposed cultural sites would continue to deteriorate over the long-term due to weathering and other natural forces.

**Impacts from Acquisition of Access.** Acquiring public access to any of the 16 areas identified for access acquisition would increase the potential for illegal disturbance of cultural sites in these areas.

### CUMULATIVE IMPACTS ON CULTURAL RESOURCES

Cultural resources would be protected from land uses that require use authorizations but would remain susceptible to vandalism and theft. Vandals and relic-hunters would have easy access to 82 percent of the planning area managed as open to ORV use for all or portions of the year. With the exception of Class III inventories on 5,848 acres, cultural research would continue to be random inventories and salvage efforts in response to project proposals. High-value cultural sites on inventoried acres could be protected by special designations.

### IMPACTS ON VISUAL RESOURCES

#### IMPACTS FROM PROPOSED MANAGEMENT ACTIONS

**Impacts from Visual Resources Management.** Table 4-18 lists the acres of land in each VRM classification.

Table 4-18

#### ACRES IN EACH VRM CLASSIFICATION: PREFERRED ALTERNATIVE

VRM CLASS	ACRES	PERCENTAGE OF PLANNING AREA
I	21,118	4
II	30,430	6
III	297,154	62
IV	134,375	28
TOTALS	483,077	100

## CHAPTER FOUR

**Impacts from Mineral Resources Management.** Mineral development in the planning area would be anticipated to alter the landscape characteristics of a few localized viewsheds.

**Impacts from Wildlife Habitat and Livestock Grazing Management.** Major vegetation treatments would alter landscape characteristics. Changing VRM classifications in the Billy Creek area from Class II to Class III would increase the allowable visual contrast of projects from low to moderate.

**Impacts from Forest Management.** Timber and woodland product harvests would alter landscape characteristics in localized areas.

**Impacts from Recreation Management.** Recreation management would maintain landscape characteristics and preserve scenic qualities in the Escalante Canyon ACEC, the Needle Rock ONA, and portions of the Gunnison Gorge SRMA. Visual resource protection needs would increase in all recreation areas as viewer volume and sensitivity would increase and viewing distance would decrease.

**Impacts from Off-Road Vehicle Management.** Managing 82 percent of the planning area as open to ORV use for all or portions of the year would degrade landscape characteristics in these areas. This impact would be most pronounced on 24,552 acres managed for ORV recreation. Changing VRM classifications from Class II to Class IV in large portions of the ORV recreation lands would increase the allowable visual contrast of surface disturbing activities on these lands from low to high.

**Impacts from Wilderness Management.** Designating the Gunnison Gorge WSA as wilderness would preserve the natural scenic values of the area.

**Impacts from Disposal of Public Lands.** Disposal of a 40-acre tract adjacent to Colorado Highway 62 and within one mile of the community of Ridgway could result in the loss of a scenic overlook site in a VRM class II area.

### *CUMULATIVE IMPACTS ON VISUAL RESOURCES*

Designating 11 percent of the planning area (51,548 acres) as VRM Class I or Class II would protect highly scenic visual resources. These lands include all the areas that are most used by recreationists seeking natural settings. Designating the remainder of the area as VRM Class III or Class IV would maintain the overall visual characteristics of the planning area but would allow for visually-contrasting projects or disturbances in localized viewsheds.

## IMPACTS ON WILDERNESS

### *IMPACTS FROM PROPOSED MANAGEMENT ACTIONS*

**Impacts from Wilderness Management.** Designating the Gunnison Gorge WSA as wilderness would permanently protect the high quality wilderness values of this area, including a pristine environment and outstanding opportunities for primitive and unconfined recreation. The high quality nature of these values is evidenced by the BLM recreation lands designation in 1972, the determination that the area is suitable for wild and scenic river designation, and the Colorado DOW's Gold Medal Trout Fishery designation. The WSA is contiguous to the nationally acclaimed Black Canyon of the Gunnison Wilderness Area, which is administered by the NPS. Designating the Gunnison Gorge as wilderness would expand that wilderness area. It would also permanently protect the Black Canyon/Gunnison Gorge system as one geologic, ecologic, and physiographic unit.

Not designating the Camel Back WSA and Adobe Badlands WSA as wilderness would prevent the permanent protection of existing wilderness values, including pristine environments and outstanding opportunities for primitive and unconfined recreation. The ORV closure and restrictions on surface-disturbing activities on 8,406 acres of the Adobe Badlands WSA would partially protect wilderness values on these lands as long as this type of management remains in effect. Surface-disturbing activities would be anticipated to impair wilderness values within both WSAs over time.

## IMPACTS ON MAJOR UTILITY DEVELOPMENT

### *IMPACTS FROM PROPOSED MANAGEMENT ACTIONS*

**Impacts from Major Utility Management.** Determining which public lands within the planning area are available for development of major utilities provides utility companies with information necessary to plan and design projects. Table 4-19 lists the acres of public land identified as needed and not needed for major utility development under each management classification.

The following impacts pertain only to those public lands that are identified in the 1980 Western Regional Utility Corridor Study as being needed for future development of major utility facilities. Closures or restrictions on lands not identified as being needed for utility facilities would be assumed to have a negligible impact on local and regional major utility development.

**Impacts from Coal Management.** Managing 3,511 acres of the Paonia/Somerset coal planning area as closed to major utility development would restrict future development of these facilities to a one-half mile wide corridor adjacent to Colorado Highway 133. This management would result

PREFERRED ALTERNATIVE IMPACTS

Table 4-19

MANAGEMENT OF PUBLIC LANDS FOR MAJOR UTILITY DEVELOPMENT:  
PREFERRED ALTERNATIVE

MANAGEMENT CLASSIFICATION FOR DEVELOPMENT OF MAJOR UTILITIES	ACRES OF PUBLIC LAND		TOTALS
	Identified as needed for major utility development	Identified as not needed for major utility development	
Open	98,612	202,394	301,006
Sensitive	934	5,762	6,696
Seasonally closed	22,739	77,381	100,120
Closed	3,511	71,744	75,255
<b>TOTALS</b>	<b>125,796</b>	<b>357,281</b>	<b>483,077</b>

Source: 1980 Western Regional Utility Corridor Study.

in a low adverse impact to future major utility development as this corridor is anticipated to accommodate future major utility needs in this area. Route options available to utility developers would be reduced.

Future major utility development would be precluded on public lands in the Terror Creek drainage. Utility development linking the Montrose and Rifle areas would be restricted as Terror Creek is one of two important utility corridors connecting these areas. These lands are presently utilized for a 115 kv electrical transmission line. Utility companies could not utilize this route nor realize the cost/benefits of grouping new and existing facilities and would be required to utilize lands adjacent to Colorado Highway 133 or private lands adjacent to the Terror Creek drainage. Both of these options would probably be less desirable and cost-effective than utilizing existing routes.

**Impacts from Soils and Water Resources Management.** Construction and major maintenance of new utility facilities would not be permitted on 11,062 acres from March 1 through May 31 if necessary to protect wet soils. Utility companies would experience operating inconvenience on these areas from April 15 through May 31, based on a typical construction/maintenance season of April 15 to October 15.

**Impacts from Riparian/Aquatic Systems Management.** Major utility development would not be effected on 557 acres as vegetation rehabilitation would mitigate surface disturbances over the long-term.

**Impacts from Threatened and Endangered Species Management.** Management of two tracts of land totalling 377 acres (Management Unit D-13) as closed to buried major utility facilities and limited to no surface disturbance from above-ground facilities to protected threatened and endangered plants and their habitat would have a low impact on utility development. These tracts could easily be avoided during planning and placement of utility facilities.

**Impacts from Wildlife Habitat Management.** No construction and major maintenance of new utility facilities would be permitted on 11,677 acres of crucial deer and elk winter range from December 1 through April 30. Utility companies would experience operating inconvenience in these areas from April 15 to May 1, based on a typical construction/maintenance season of April 15 to October 15.

*CUMULATIVE IMPACTS ON MAJOR UTILITY DEVELOPMENT*

Management under this alternative would result in a low adverse impact to major utility development. Seasonal restrictions on construction and major maintenance on 18 percent of the public lands identified as needed for future utility development would result in operating inconvenience and potential cost increases for utility companies. Restrictions would be most significant in the salinity control areas (11,062 acres) where one-quarter of the typical construction season would be under this seasonal operating restriction.

## CHAPTER FOUR

Excluding major utility development within the Terror Creek drainage would restrict utility development linking the Montrose and Rifle areas to alternative and possibly less desirable and cost-effective routes.

### IMPACTS ON ACCESS

#### *IMPACTS FROM PROPOSED MANAGEMENT ACTIONS*

**Impacts from Acquisition of Access.** Acquiring access into 16 areas would improve administration and allow for public utilization of these public lands.

### IMPACTS ON ECONOMIC RESOURCES

#### *IMPACTS FROM PROPOSED MANAGEMENT ACTIONS*

**Impacts from Coal Management.** Present and future demands for coal in Delta and Gunnison counties, with market values ranging from \$31 million to \$103 million annually (1984 values), would be met over the life of this plan. Meeting coal demands would have a corresponding positive impact on generation of local incomes and royalties paid to federal and state governments. Coal production costs would be anticipated to increase slightly within the riparian, aquatic, and crucial winter range areas where requirements for additional mitigation or seasonal restrictions would be applied.

**Impacts from Locatable Minerals Management.** Economic benefits associated with the unknown mineral potential on 30,478 acres of withdrawn lands would not be achieved.

**Impacts from Soils and Water Resources Management.** Completing and maintaining the Elephant Skin Wash salinity control project would contribute to lower water treatment costs downstream. During the life of the plan, the projected reduction in salinity of 1,434 to 2,209 tons would serve to lower salinity costs in the Colorado River Basin by \$83,172 to \$128,122. Any additional projects would have similar economic benefits. The local economy would benefit from slightly increased soil productivity and reduced costs for less frequent removal of reservoir sedimentation.

**Impacts from Livestock Grazing Management.** Current trends and conditions associated with management of 32,607 AUMs, valued at \$247,813 (1985 values), would continue. These AUMs represent a decrease of 6,393 AUMs, valued at \$48,587, from the existing situation. Any loss of AUMs could result in financial losses for the affected ranching operations.

**Impacts from Forest Management.** The sale of forest and woodland products would produce about \$19,267 in federal revenues annually. These revenues would be nearly

the same as the average annual revenues since 1981. Local employment and income would be supported to the extent that timber and woodland harvests would be by local commercial cutters and sold locally. The sale of 1,265 cords of fuelwood annually would offset local residential heating costs.

**Impacts from Recreation Management.** Development of a downhill ski area on Storm King Peak would have a low to moderate impact (10 percent or less) on local social and economic conditions. Table 4-20 identifies this impact based on the existing destination-type ski area proposal for Storm King Peak, a major construction period from 1993 to 1997, and the general growth projections for the Colorado ski industry.

The population of Montrose County would temporarily increase by a significant 10 percent as a result of ski area construction. Surrounding counties, especially Delta County, would experience a similar but smaller increase in population due to demands for a labor force and for services of the type that support large construction projects. After termination of the major construction phase, this additional project-related population would decline to several hundred workers and families supported financially by operational and support service jobs. During operation, the expected annual skier days for the ski area would range from 20,000 in 1995 to 120,000 in 2009.

The financial viability of a destination-type downhill ski area on Storm King Peak is speculative. Current conditions indicate a lower than average growth in the Colorado ski market with some ski areas experiencing a slight decline in skier days during the 1985-86 ski season. Projected ski area growth rates in Colorado appear to be flat to slightly increasing with a high level of competition between the numerous well-established destination ski areas for the available skier market.

#### *CUMULATIVE IMPACTS ON ECONOMIC RESOURCES*

The cumulative impact on the local economy is likely to be beneficial but not large unless the Storm King Peak ski area is developed. The loss of AUMs could result in financial losses for ranching operations. Development of coal, water, forest, and recreation resources could offset any negative economic impacts from losses of AUMs. Development of the ski area would be especially beneficial to the local economy.

**IMPACT COMPARISON**

Table 4-20

**SOCIAL AND ECONOMIC IMPACTS FROM STORM KING PEAK SKI AREA DEVELOPMENT:  
PREFERRED ALTERNATIVE**

IMPACT	YEAR			
	1995	2000	2005	2009
SKI REVENUES	\$2,320,000	\$6,461,200	\$10,602,400	\$13,920,000
LABOR INCOME				
Montrose County	\$33,146,000	\$3,018,000	\$3,134,000	\$3,604,000
Delta County	\$13,656,000	\$1,214,000	\$1,204,000	\$4,386,000
POPULATION INCREASE (number of persons)				
Montrose County	3,720	448	397	327
Delta County	1,192	848	150	96
LABOR FORCE INCREASE (number of jobs)				
Montrose County	1,609	207	212	175
Delta County	663	434	78	50

**COMPARISON OF ALTERNATIVE IMPACTS**

The impacts of the specific management actions prescribed for each of the four alternatives were compared to determine the relative impacts under each alternative.

The results of the overall analysis and comparison of the alternative impacts are presented in Table 4-21. The ratings assigned in the table should not be construed as having any statistical significance.

The comparison ratings are based upon professional judgment and the detailed impact assessments described in this chapter. The comparison ratings were ranked on a numerical scale, along a continuum of -3 to 3, as shown in Figure 4-1.

Impacts from and impacts on support functions management (utilities, land tenure, access, fire, etc.) were considered in impacts on and from resource management actions.

**SHORT-TERM USES VS. LONG-TERM PRODUCTIVITY**

Tradeoffs between short-term uses and long-term productivity of resources have been identified. For this analysis, short-term refers to the period of implementation of this plan which is approximately 10 years, and long-term refers to at least a 20-year period or beyond during which the adverse or beneficial impacts of the proposal would still occur.

**MINERAL RESOURCES**

Development of mineral resources (coal, oil and gas, geothermal resources, locatable minerals, and mineral materials) would be constrained by withdrawals and restrictions, primarily under the Continuation of Current Management and Conservation Alternatives. This would result in a long-term loss of mineral production.

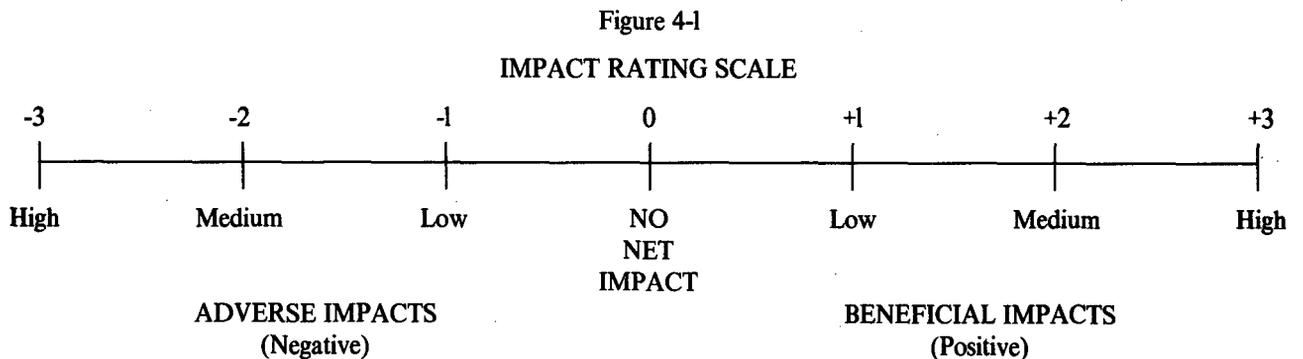
**SOILS**

Intensive off-road vehicle use and construction activities would have the most detrimental long-term effects on soil stability and productivity. The net loss of soil productivity

**CHAPTER FOUR**

Table 4-21  
COMPARISON OF ALTERNATIVE IMPACTS

<b>MANAGEMENT ACTION</b>	<b>CONTINUATION OF CURRENT MANAGEMENT ALTERNATIVE</b>	<b>PRODUCTION ALTERNATIVE</b>	<b>CONSERVATION ALTERNATIVE</b>	<b>PREFERRED ALTERNATIVE</b>
Air Quality	0.0	0.0	0.0	0.0
Coal Management	-1.0	+2.0	+1.0	+1.5
Oil, Gas, & Geothermal Management	-0.5	+2.0	-1.5	+0.5
Locatable Minerals Management	-0.5	+1.0	-1.5	+0.5
Mineral Materials Management	+1.5	+2.0	-1.5	+1.0
Soils Management	+0.5	+1.0	+2.0	+1.5
Water Resources Management	+0.5	+1.0	+2.0	+2.5
Riparian Habitat Management	+1.0	-0.5	+2.0	+2.0
Wildlife Habitat Management	+1.5	-1.0	+2.5	+2.0
Threatened & Endangered Species	-0.5	-1.5	+2.0	+1.5
Livestock Grazing Management	+2.0	+2.5	-2.0	-1.5
Forest/Woodlands Management	-2.5	-3.0	+1.5	+2.0
Recreation Management	1.0	-1.0	+2.5	+1.5
Cultural Resources Management	-1.0	+0.5	+2.0	+1.0
Visual Resources Management	+1.0	+1.0	+2.0	+1.5
Wilderness Management	-1.5	-3.0	+3.0	+1.0
Major Utility Development	+2.0	+1.5	-2.0	+1.0
Economics	+0.5	+0.5	+0.5	+0.5



## IMPACT COMPARISON

would be greatest under the Continuation of Current Management Alternative.

### WATER RESOURCES

Salinity control projects, riparian zone protection, and stream channel stabilization would improve water quality. This improvement would be greatest under the Preferred Alternative.

### THREATENED AND ENDANGERED SPECIES

Intensive ORV use as proposed under the Conservation and Preferred Alternatives would reduce potential habitat of threatened and endangered species and unique plant associations.

### WILDLIFE HABITAT

Big game habitat would be lost due to mineral development and increased recreational use under all alternatives, with the greatest loss occurring under the Production Alternative. Non-game and aquatic habitats would be improved under all of the alternatives.

### LIVESTOCK GRAZING

Restrictions placed on livestock grazing utilization would reduce initial carrying capacities but would increase long-term productivity. These restrictions would have the greatest impact under the Preferred Alternative.

### FORESTRY

Timber and woodland harvests would be eliminated or restricted to varying degrees under all alternatives. The long-term productivity of the forest resource would be reduced in all areas where timber and woodland harvests are eliminated.

### CULTURAL AND PALEONTOLOGICAL RESOURCES

The cultural and paleontological resources and data bases would benefit over the short-term from clearances and inventories conducted prior to surface-disturbing activities. This would be the case under all alternatives.

### WILDERNESS

Designation as wilderness and management actions designed to protect wilderness values would provide long-

term protection for three WSAs under the Conservation Alternative and one WSA under the Preferred Alternative.

## IRREVERSIBLE OR IRRETRIEVABLE COMMITMENTS OF RESOURCES

Irreversible or irretreivable commitments of resources occur when a wide range of future management options are precluded. This section identifies the extent to which the alternatives would irreversibly limit potential resource uses. The individual alternative impacts sections identify those decisions which apply to a particular alternative and the magnitude of the impact.

### MINERAL RESOURCES

Mineral resources (coal, oil and gas, geothermal resources, locatable minerals, and mineral materials) which are mined or otherwise removed are lost from all future uses.

### SOILS

The loss of soil through wind and water erosion would be irretreivable.

### WATER RESOURCES

The mining of coal and locatable minerals could result in the permanent and irreversible loss of ground water through diversion and subsidence.

### THREATENED AND ENDANGERED SPECIES

Individual threatened and endangered plants and unique plant associations and their scientific values would be lost through disposal of public land, accidental destruction, and intensive ORV use.

### WILDLIFE HABITAT

Wildlife habitat lost through disposal of public lands, construction activities, and physical conversions would be irretreivably lost.

### LIVESTOCK GRAZING

Disposal of public lands presently grazed by livestock would result in an irretreivable loss of livestock forage.

## **CHAPTER FOUR**

### **CULTURAL AND PALEONTOLOGICAL RESOURCES**

Inadvertent destruction of or damage to cultural and paleontological resources would result in an irretrievable loss of scientific information.

### **WILDERNESS**

Wilderness values lost through road construction, project development, or mineral exploration would be irretrievable.

### **LANDS**

Disposal of public lands would result in a loss of administrative control of all resource values on these lands except leasable and locatable minerals and existing land use authorizations.

**CHAPTER FIVE**  
**CONSULTATION AND COORDINATION**

# CHAPTER FIVE

## CONSULTATION AND COORDINATION

### CONSULTATION AND COORDINATION

During preparation of this Draft RMP/EIS, federal agencies, state and local governments and agencies, interest groups, and individuals were contacted for information and data gathering purposes. A partial listing of these contacts follows:

#### FEDERAL AGENCIES

##### Department of the Interior

Bureau of Land Management  
Grand Junction Resource Area  
National Park Service  
U.S. Fish and Wildlife Service  
Ecological Services Office  
Endangered Species Office

##### Department of Agriculture

U.S. Forest Service  
Rocky Mountain Regional Office  
Supervisor's Office; Grand Mesa-Uncompahgre-  
Gunnison National Forests  
Ouray Ranger District  
Paonia Ranger District

##### Other Federal Agencies

Environmental Protection Agency  
Advisory Council on Historic Preservation

#### COLORADO STATE AGENCIES

Department of Health  
State Historic Preservation Officer  
Department of Natural Resources  
Division of Wildlife  
Southwest Regional Office  
Northwest Regional Office  
Northeast Regional Office  
District 10 Regional Planning Commission

### COUNTY GOVERNMENTS AND AGENCIES

#### Delta County

Board of County Commissioners  
Planning Department

#### Montrose County

Board of County Commissioners  
Planning Department

#### Ouray County

Board of County Commissioners  
Planning Department

#### Gunnison County

Board of County Commissioners  
Planning Department

### INTEREST GROUPS AND ORGANIZATIONS

Chipeta Chapter, Colorado Archeological Society  
Colorado Historical Society  
Colorado Ski Country USA  
Colorado Ute Electric Association  
Delta-Montrose Electric Association  
The Nature Conservancy  
Nickens and Associates  
Sierra Club, Uncompahgre Group  
Storm King Associates  
Uncompahgre Valley Association  
Western Colorado Congress

### ADVISORY COUNCILS

Montrose BLM District Advisory Council

### INDIVIDUALS

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John Horn, Archeologist  
Bill Harris, Archeologist

## CHAPTER FIVE

### PUBLIC PARTICIPATION

Throughout the planning process, concerns and interests of all publics were addressed in a variety of public participation activities. The area manager, RMP team leader, and team members met with county commissioners, environmental and interest groups, the Montrose BLM District Advisory Council (representatives who advise the District Manager on local public land issues), and other concerned citizens.

On July 28, 1983, a Notice of Intent was submitted to the *Federal Register*. This notice began the formal planning process. Invitations to participate in the planning process were sent to individuals, organizations, agencies, special interest groups, the media, business interests, academic institutions, and individuals. The general public was informed through news releases.

All publics were invited to attend a series of public scoping meetings held in August 1983 in Montrose, Delta, and Hotchkiss. The purpose of the meetings was to explain the objectives and goals of the RMP and identify resource management issues. Issue statements and comments were accepted from the public by mail and at the scoping meetings. Land tenure adjustments, off-road vehicle use, and recreation, wilderness, and forestry issues received the most response.

The first RMP newsletter was published in March 1985 and mailed to about 700 addresses. A second newsletter was published and mailed in December 1985.

The public was invited to comment on three draft resource management alternatives (the Continuation of Current Management, Production, and Conversation alternatives) at a series of Open House Meetings held in Montrose, Delta, and Paonia in January 1986. Comments received were considered in finalizing these alternatives and in formulating the BLM's Preferred Alternative.

### DISTRIBUTION LIST

The Draft RMP/EIS will be distributed to over 500 addresses. Comments from federal agencies, state and local governments and agencies, interest groups, academic institutions, business interests, and individuals are solicited and will be accepted. A partial list of recipients follows:

### FEDERAL AGENCIES

#### Department of the Interior

Bureau of Land Management  
Headquarters Planning Office  
Colorado State Office  
Canon City District Office  
Craig District Office  
Grand Junction District Office  
Montrose District Office  
Bureau of Mines  
Bureau of Reclamation  
Fish and Wildlife Service  
National Park Service  
Black Canyon of the Gunnison National Monument  
Minerals, Water, and Air Quality Office

#### Department of Agriculture

Forest Service  
Supervisor's Office; Grand Mesa-Uncompahgre-Gunnison National Forests  
Ouray Ranger District  
Paonia Ranger District  
Soil Conservation Service  
Delta Conservation District  
Shavano Conservation District

#### Department of Energy

Western Area Power Administration

#### Other Federal Agencies

Environmental Protection Agency  
Federal Highway Administration  
Advisory Council on Historic Preservation

### COLORADO STATE AGENCIES

Department of Agriculture  
Department of Natural Resources  
Division of Parks and Outdoor Recreation  
Division of Wildlife  
Colorado Natural Areas Program  
Mined Land Reclamation Board  
Natural Heritage Inventory  
State Clearinghouse  
State Historic Preservation Officer  
District 10 Regional Planning Commission

## CONSULTATION AND COORDINATION

### COUNTY GOVERNMENTS AND AGENCIES

#### Delta County

Board of County Commissioners  
Planning Commission  
Planning Department

#### Montrose County

Board of County Commissioners  
Planning Commission

#### Ouray County

Board of County Commissioners  
Land Use Administrator

#### Gunnison County

Board of County Commissioners  
Planning Commission

#### Mesa County

Board of County Commissioners  
Policy and Research Office

### MUNICIPAL GOVERNMENTS

City of Delta  
City of Montrose  
Town of Cedaredge  
Town of Crawford  
Town of Hotchkiss  
Town of Olathe  
Town of Orchard City  
Town of Ouray  
Town of Paonia  
Town of Ridgway

### CONGRESSIONAL AND LEGISLATIVE OFFICES

Distribution will be made to the offices of Senator William L. Armstrong, Senator Timothy E. Wirth, and Congressman Ben Nighthorse Campbell, and to the offices of State Senators Robert DeNier and Robert Pastore, and State Representatives Ed Carpenter and Margaret Masson.

### INTEREST GROUPS AND ORGANIZATIONS

American Wilderness Alliance  
Audubon Society, Western Colorado Chapter

Chipeta Chapter, Colorado Archeology Society  
Club 20  
Colorado Historical Society  
Colorado Mining Association  
Colorado Mountain Club  
Colorado Native Plant Society  
Colorado Open Space Council  
Colorado Trail Riders  
Continental Divide Trail Society  
Delta County Cattlemen's Association  
Ducks Unlimited, Montrose Chapter  
Grand Junction Geological Society  
Gunnison County Stockgrowers' Association  
Gunnison River Coalition  
League of Women Voters  
Minerals Exploration Coalition  
Montrose County Chamber of Commerce  
National Council of Public Land Users  
National Wildlife Federation  
Natural Resources Defense Council  
The Nature Conservancy  
North Fork Woolgrowers' Association  
Ouray County Alliance  
Ouray County Cattlemen's Association  
Paonia Chamber of Commerce  
Rocky Mountain Oil and Gas Association  
Sierra Club, Rocky Mountain Chapter  
Sierra Club, Uncompahgre Group  
Society for Range Management  
Southern Ute Tribe  
Trout Unlimited, Montrose Chapter  
Uncompahgre Valley Livestock Association  
United Four Wheel Drive Association  
Ute Mountain Tribe  
Western Colorado Congress  
Western Organization of Resource Councils  
Western Slope Energy Research Center  
Western Slope Woolgrowers' Association  
Western Small Miners' Association  
The Wilderness Society  
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## CHAPTER FIVE

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## **CHAPTER FIVE**

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## **APPENDIXES**

# APPENDIX A

## BIG GAME FORAGE AND POPULATION DATA

Appendix A details some of the information used to develop some of the content of the wildlife sections of this RMP/EIS. Included are the methodologies and calculation formulas used to convert big game forage requirements to AUMs and a table listing estimates of big game population levels within the planning area.

### BIG GAME FORAGE DEMAND CALCULATIONS

The starting point for forage demand calculations was the population estimates detailed in the Affected Environment (Chapter Two) and Table A-2 of this appendix.

Mule deer and elk forage demands were calculated only for the five-month winter period because populations of those species are almost non-existent on public lands outside the winter period. Where there are summer or year-round populations of deer and elk on public lands, there is no instance of conflict with livestock use or of forage demands which remove even a small fraction of available forage.

A twelve-month period was used to calculate antelope and bighorn sheep forage demands. No attempt was made to determine the amount of forage antelope and bighorn sheep remove from private land; it was assumed their forage demands are met on public land.

Mule deer and elk consumption rates were adjusted for winter intake. Bighorn sheep and antelope figures represent year-round consumption rates. No attempt was made to adjust consumption rates for herd sex or age composition differences.

Ratios used to convert big game animal units to animal unit months (AUMs) follow. In all calculations, an 850-pound value was used for an AUM.

#### MULE DEER

The winter consumption rate for mule deer is 3 pounds air dry forage per adult mule deer per day (BLM, Mule Deer Technical Supplement); therefore, one mule deer unit month (UM) equals 90 pounds air dry forage, and 9.4 mule deer UMs equals one AUM.

#### *Calculations:*

1. AUM value = 850 lbs. air dry forage
2. 3 lbs. (mule deer rate)  $\times$  30 days = 90 lbs. mule deer UM
3. 850 lbs. (AUM value)/90 lbs. (mule deer UM) = 9.4 UMs
4. 1 AUM = 9.4 Mule Deer Unit Months.

#### ELK

The winter consumption rate for elk is 10 pounds air dry forage per adult elk per day (average consumption rate from various sources, unpublished BLM Memorandum dated 8/16/83, UBRA files); therefore one elk UM equals 300 pounds air dry forage, and 2.8 elk UMs equals one AUM.

#### *Calculations:*

1. AUM value = 850 lbs. air dry forage
2. 10 lbs. (elk rate)  $\times$  30 days = 300 lbs. elk UM
3. 850 lbs. (AUM value)/300 lbs. (elk UM) = 2.8 UMs
4. 1 AUM = 2.8 Elk Unit Months.

#### ANTELOPE

The year-round consumption rate for antelope is 1.8 pounds air dry forage per adult antelope per day (BLM, Pronghorn Antelope Technical Supplement); therefore, one antelope UM equals 54 pounds air dry forage, and 15.7 antelope UMs equals one AUM.

#### *Calculations:*

1. AUM value = 850 lbs. air dry forage
2. 1.8 lbs. (antelope rate)  $\times$  30 days = 54 lbs. antelope UM
3. 850 lbs. (AUM value)/54 lbs. (antelope UM) = 15.7 UMs
4. 1 AUM = 15.7 Antelope Unit Months.

#### BIGHORN SHEEP

The year-round consumption rate for bighorn sheep is 3.7 pounds air dry forage per adult bighorn sheep per day (Zarn 1981, Anderson and Denton 1978, and Carpenter

## APPENDIX A

1979); therefore, one bighorn sheep UM equals 111 pounds air dry forage, and 7.6 bighorn sheep UMs equals one AUM.

### Calculations:

1. AUM value = 850 lbs. air dry forage
2. 3.7 lbs. (bighorn rate) × 30 days = 111 lbs. bighorn sheep UM
3. 850 lbs. (AUM value)/111 lbs. (bighorn sheep UM) = 7.6 UMs
4. 1 AUM = 7.6 Bighorn Sheep Unit Months.

Table A-1 summarizes the big game forage requirements in AUMs by species.

## BIG GAME POPULATION ESTIMATES

Table A-2 lists the estimated pre-hunt and post-hunt population levels of deer and elk in the planning area. This information was derived from Colorado DOW data.

Table A-1  
FORAGE DEMAND IN AUMs BY BIG GAME SPECIES

BIG GAME SPECIES	FORAGE DEMANDS IN AUMs OF POST-HUNT POPULATIONS ON PUBLIC LANDS		FORAGE DEMANDS IN AUMs FROM GRAZING ES
	1985	1988	
MULE DEER <sup>1</sup>	10,332	11,914	7,932
ELK <sup>1</sup>	2,992	3,178	2,076
ANTELOPE (pronghorn)	191	191	191
BIGHORN SHEEP <sup>2</sup>			
Gunnison Gorge	31.6	158	NA <sup>3</sup>
Camel Back	NA	NA	NA
<b>TOTALS</b>	<b>13,546.6</b>	<b>15,441</b>	<b>10,199</b>

### Notes:

- <sup>1</sup> Estimated forage demands based on a five-month winter use period.
- <sup>2</sup> Post-hunt figures for 1988 are based on year-round forage demands of an assumed herd population of 100 head of bighorn sheep. After 1988, a herd population of 150 head would require 237 AUMs of forage, and a herd population of a maximum 300 head would require 474 AUMs of forage. There are currently no bighorn sheep in the Camel Back area, but re-introduction is a possibility and forage requirements would be the same as for the Gunnison Gorge herd.
- <sup>3</sup> NA = Not applicable.

Table A-2

## DEER AND ELK POPULATIONS WITHIN THE PLANNING AREA

GAME MANAGEMENT UNIT	PRE-HUNT POPULATION ESTIMATE	1985 PRE-HUNT		1985 POST-HUNT		1988 POST-HUNT		EXPECTED POST-1988 TREND
		Population Estimate in GMU	Population <sup>1</sup> on Public Land	Population Estimate in GMU	Population <sup>1</sup> on Public Land	Population Estimate in GMU	Population <sup>1</sup> on Public Land	
ELK								
GMU-411 *	225	605	91	487	73	486	73	Down
GMU-52 *	940	1,131	170	912	137	909	136	Down
GMU-521 *	2,030	4,536	680	3,657	548	3,645	547	Down
GMU-62 *	565	1,872	280	1,583	237	1,586	238	Static
GMU-64	120	408	61	336	50	363	54	Static
GMU-65	1,635	2,857	428	2,349	352	2,538	380	Static
GMU-53	855	1,500	224	1,260	188	1,500	224	Down
GMU-63	160	740	111	605	91	850	128	Static
MULE DEER								
GMU-411 **	1,100	2,560	563	2,174	476	2,760	607	Static
GMU-52 **	3,178	4,675	1,028	3,970	873	5,040	1,109	Static
GMU-521 **	1,608	2,078	457	1,765	388	2,240	493	Down
GMU-62 **	10,759	25,065	11,279	20,928	9,418	23,100	10,395	Static
GMU-53	5,215	5,970	1,313	5,045	1,110	8,060	1,773	Static
GMU-63	2,424	6,580	3,290	5,475	2,737	6,100	3,050	Static
GMU-64 *	1,337	2,950	1,445	2,535	1,242	2,850	1,396	Down
GMU-65 *	4,620	7,400	3,700	6,360	3,180	7,150	3,575	Static

## Notes:

- <sup>1</sup> Percent of population on public land is the same as that used in the Uncompahgre Basin Resource Area Grazing ES.
- \* Proportioned according to regular 1981 bull harvest or 1981 buck harvest.
- \*\* DAU population split into GMUs using 1982 Quadrat Census Data.

## APPENDIX B

### LIVESTOCK GRAZING PROGRAM

Table B-1 provides an allotment-specific summary of the livestock grazing program. Following is an explanation of the data presented in this table:

- (1) **Management category** is the general management objective for each allotment. I the most intensive management, with the objective of improving existing resource conditions; M a less intensive management, with the objective of maintaining existing resource conditions; and C the least intensive, or custodial, management.
- (2) **Active grazing preference** is that portion of the total grazing preference in AUMs available to be licensed for use during any one grazing year.
- (3) **Voluntary non-use/suspended grazing preference** is that portion of the total grazing preference in AUMs temporarily withheld from active grazing use.
- (4) **Total grazing preference** is the total number of livestock grazing AUMs on public lands apportioned and attached to base property owned or controlled by a permittee or lessee. Column (2) plus Column (3) equals Column (4).
- (5) **Class of livestock** is the kind of livestock authorized to graze on an allotment. C = cattle; S = sheep; H = horses.
- (6) **Season of use** is the time of year when livestock are present on the allotment. Sp = spring; Su = summer; Fa = fall; Wi = winter.
- (7) **Implementation status** is the current status of the Allotment Management Plan (AMP). IMP = Implemented working AMP; NOT = Signed AMP that is not presently working; PAR = Signed AMP that is not fully implemented due to project needs; REV = Revised AMP.
- (8) **Trend** is the direction of change in range condition over a period of time. Data shown is based on trend studies established since the Uncompahgre Basin Grazing ES was published in 1978. A lack of data or insufficient data due to the short time period (1 to 5 years) that trend study plots have been in-place on a particular allotment is indicated by an asterisk (\*).

Table B-1

## SUMMARY OF LIVESTOCK GRAZING PROGRAM BY ALLOTMENT

ALLOTMENT IDENTIFICATION No. Name	ACRES OF PUBLIC LAND	NUMBER OF OPERATORS	MANAGE- MENT CATEGORY	GRAZING PREFERENCE			CLASS OF LIVESTOCK	SEASON OF USE	IMPELME- NTATION STATUS	TREND
				Active	Voluntary Non-use/ Suspended	Total				
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
4001 Dominguez Individual	52,824	1	I	4,762	0	4,762	C	Fa,Wi,Sp	—	*
				38	0	38	H	Fa,Wi,Sp		
4002 Lower Escalante	2,240	1	C	300	0	300	S	Sp	—	*
4003 Escalante Flats	2,280	1	C	160	115	275	C	Wi	—	*
4006 Dry Mesa	16,165	2	I	666	493	1,159	C	Sp,Fa	IMP	Static
4007 Sawmill Mesa	12,451	1	I	618	197	815	C	Sp,Fa	IMP	Static
4008 25 Mesa	10,544	2	I	644	0	644	C	Sp,Fa	IMP	Up
4010 Winter/Monitor Mesa	18,000	3	I	1,173	0	1,173	C	Sp,Fa	NOT	*
4012 Canal	10,492	2	I	648	660	1,308	C	Sp,Fa	IMP	Static
4013 Ben Lowe	5,492	2	M	432	352	784	C	Fa	IMP	Up
4014 Joker	1,833	1	C	87	0	87	C	Su	—	*
4015 White Ranch	416	1	C	10	0	10	C	Sp,Fa	—	*
4016 Wells Gulch	17,017	1	I	2,366	434	2,800	S	Wi	IMP	*
4017 Alkali Flats	35,439	1	I	3,915	740	4,655	S	Wi	IMP	Static
4019 Deer Basin-Midway	11,360	1	I	900	0	900	S	Wi	IMP	Static
4020 Antelope	1,750	1	C	67	0	67	S	Sp	—	*
4021 Point Creek	1,510	1	C	101	0	101	C	Sp,Fa	NOT	*
4022 Petrie Mesa	2,825	1	M	104	0	104	S	Wi	IMP	*
4023 Dirty George	1,000	1	M	133	79	212	C	Sp	—	*
4024 South Branch	1,000	1	M	101	274	375	C	Sp,Fa	—	*
4025 Ward Creek Doughspoon	17,000	6	I	445	640	1,085	C	Sp,Fa	—	*
4029 Escalante Creek East	640	1	C	26	19	45	C	Fa	—	*
4502 Surface to Leroux Creek	3,230	5	I	443	114	557	C	Sp,Fa	NOT	*
4503 Stingley Gulch	1,078	1	M	98	0	98	C	Sp	—	*
4504 Leroux Creek	540	1	C	32	0	32	C	Su	—	*
4505 Juniper Knob	615	1	C	18	0	18	C	Fa	—	*
4506 Oak Mesa	735	1	C	51	0	51	C	Su	—	*
4507 Roatcap-Jay Creek	8,920	1	I	869	242	1,111	C	Sp,Fa	PAR	Static
4508 Fire Mountain Canal	120	1	C	10	0	10	C	Sp,Fa	—	*
4509 Upper Jay Creek	1,035	1	C	86	0	86	C	Su	—	*

Table B-1 (continued)

ALLOTMENT IDENTIFICATION No. Name	ACRES OF PUBLIC LAND	NUMBER OF OPERATORS	MANAGE- MENT CATEGORY	GRAZING PREFERENCE			CLASS OF LIVESTOCK	SEASON OF USE	IMPELME- NTATION STATUS	TREND
				Active	Voluntary Non-use/ Suspended	Total				
				(1)	(2)	(3)				
4510 West Roatcap	320	1	C	88	0	88	C	Su	—	*
4511 Overland	160	1	C	28	79	107	C	Sp,Fa	—	*
4512 East Roatcap Individual	211	1	C	58	0	58	C	Su	—	*
4513 Stevens Gulch Common	2,260	3	I	67	0	67	C	Sp,Fa	—	*
4514 Upper Terror Creek	650	1	C	59	0	59	C	Su	—	*
4515 West Stevens Gulch	1,255	1	I	168	0	168	C	Sp,Fa	—	*
4516 Hubbard Creek	1,521	1	C	45	0	45	S	Su	—	*
4517 Coal Gulch	7,720	1	I	587	61	648	S	Su	IMP	Static
4518 Pilot Creek	43	1	C	33	0	33	S	Su	—	*
4519 Muddy Creek	419	1	C	16	0	16	S	Sp	—	*
4521 Stock Driveway	120	1	C	6	0	6	S	Sp,Fa	—	*
4522 Downing	120	1	C	27	0	27	C	Sp,Fa	—	*
4523 Williams Creek	110	1	C	8	0	8	C	Su	—	*
4524 Deep Creek	160	1	C	3	0	3	C	Su	—	*
4525 Anthracite Creek	1,043	1	M	95	0	95	C	Su	—	*
4527 Jumbo Mountain	5,114	1	I	119	0	119	C	Su	—	*
4528 Oak Ridge Common	3,595	4	I	245	28	273	C	Sp,Fa	IMP	Up
4529 Reynolds Creek	1,200	3	M	159	145	304	C	Sp,Fa	IMP	*
4530 McDonald Mesa	2,596	1	M	115	68	183	C	Sp,Fa	IMP	Up
4531 Popp Ranch	222	1	C	11	0	11	C	Sp,Fa	—	*
4532 McDonald Creek	3,950	1	M	209	0	209	S	Sp,Wi	IMP	*
4534 South of Town	3,391	1	M	310	0	310	S	Sp	—	Up
4535 Homeplace Individual	160	1	C	15	0	15	C	Sp,Fa	—	*
4536 West Youngs Peak	160	1	C	6	44	50	C	Su	—	*
4537 Youngs Peak	2,431	1	I	150	0	150	C	Sp	IMP	Up
4539 Cottonwood Creek	120	1	C	10	0	10	C	Sp,Fa	—	*
4540 North Saddle Peak	200	1	C	26	0	26	C	Su	—	*
4541 Sunshine Mesa	40	1	C	5	0	5	C	Su	—	*
4542 Needle Rock	40	1	C	8	0	8	C	Sp	—	*
4543 South Saddle Peak	218	1	C	12	0	12	C	Su	—	*
4544 Milk Creek	123	1	C	16	0	16	C	Sp	—	*
4546 Missouri Flats Section 15	120	1	C	4	0	4	C	Su	—	*
4547 Section 35	70	1	C	22	14	36	C	Su	—	*
4549 Dry Creek	3,110	1	I	183	0	183	C	Sp,Fa	NOT	*

Table B-1 (continued)

ALLOTMENT IDENTIFICATION No. Name	ACRES OF PUBLIC LAND	NUMBER OF OPERATORS	MANAGE- MENT CATEGORY	GRAZING PREFERENCE			CLASS OF LIVESTOCK	SEASON OF USE	IMPELME- NTATION STATUS	TREND
				Active	Voluntary Non-use/ Suspended	Total				
				(1)	(2)	(3)				
4550 Leroux	2,000	1	I	158	0	158	C	Sp	—	*
4551 Aspen Ditch	370	1	C	57	0	57	S	Wi	—	*
4553 Harrington	640	1	C	20	0	20	C	Wi,Sp	—	*
5001 Smith Mountain	3,477	1	I	376	0	376	S	Wi,Sp	—	*
5002 Dedication Site	240	1	C	44	0	44	C	Sp	—	*
5003 Selig Canal	1,935	1	I	104	0	104	S	Wi	—	*
5004 Peach Valley	2,420	1	I	199	9	208	S	Wi	—	Up
5007 Upper Peach Valley	3,727	1	I	415	0	415	S	Wi	—	*
5008 Brush Point	18,205	1	I	32	0	32	C	Wi,Sp	IMP	*
				1,121	0	1,121	S	Wi,Sp		
5010 Dead Horse Common	1,117	2	M	169	3	172	C	Su	—	*
5011 Gould Reservoir	2,860	1	I	305	315	620	C	Su	—	*
5012 Cedar Point	620	1	C	55	0	55	C	Su	—	*
5013 Iron Canyon	1,300	1	M	95	0	95	C	Su	—	*
5014 Poison Spring	1,365	2	M	99	29	128	C	Su	—	*
5015 Grizzly Gulch	1,930	1	C	345	0	345	C	Su	—	*
5016 Black Canyon	440	2	C	61	0	61	C	Su	—	*
5017 Green Mountain	21,170	3	I	639	126	765	C	Sp	IMP	Static
				1,021	0	1,021	S	Sp,Fa		
5018 Crawford Reservoir	260	1	C	24	0	24	C	Sp	—	*
5020 Black Ridge	10,600	1	I	42	0	42	C	Sp	—	*
				510	0	510	S	Wi		
5022 Rabbit Gulch	1,640	1	M	77	0	77	C	Wi	—	*
5023 Sulphur Gulch	468	1	C	7	0	7	S	Wi,Sp	—	*
5024 Shamrock	1,080	1	C	90	0	90	S	Sp	—	*
5026 Star Nelson	160	1	C	11	0	11	C	Wi	—	*
5027 Adobe	300	1	C	24	0	24	C	Sp	—	*
5028 Doug Creek	400	1	C	60	0	60	C	Sp	—	*
5029 Spring Gulch	1,429	1	M	111	0	111	C	Su	IMP	*
5030 Adobe South	1,611	1	C	95	6	101	C	Sp,Fa	—	*
5031 Black Canyon Jones D	1,654	1	C	89	21	110	C	Sp,Fa	—	*
5032 Bostwick Park	360	1	C	4	0	4	C	Sp	—	*
5033 Pinyon Springs	1,031	1	C	131	0	131	C	Su	—	*
5034 Rawhide-Coffee Pot	1,940	1	C	33	0	33	S	Sp,Fa	—	*
5036 Big Gulch	40	1	C	6	0	6	S	Sp,Fa	—	*
5038 Red Canyon	80	1	C	2	0	2	C	Su	—	*
				17	0	17	C	Sp		*

ALLOTMENT IDENTIFICATION No. Name	ACRES OF PUBLIC LAND	NUMBER OF OPERATORS	MANAGE- MENT CATEGORY	GRAZING PREFERENCE			CLASS OF LIVESTOCK	SEASON OF USE	IMPELLEN- TATION STATUS	TREND
				Active	Voluntary Non-use/ Suspended	Total				
				(1)	(2)	(3)				
5040 Pine Ridge	80	1	C	14	0	14	C	Su	—	*
5041 East Gould Reservoir	620	1	M	20	19	39	C	Sp	—	*
5043 Collins	200	1	C	10	0	10	C	Sp	—	*
5044 Big Pasture	200	1	C	15	0	15	C	Sp	—	*
5045 Black Bullet	90	1	C	3	0	3	C	Fa	—	*
5046 Big Gulch	440	1	C	39	0	39	C	Su	—	*
5049 Smith Fork Individual	466	1	M	19	0	19	C	Fa	IMP	*
5050 Allen Reservoir	200	1	C	39	0	39	C	Sp,Fa	—	*
5051 Rim Rock Allotment	40	1	C	1	0	1	C	Su,Fa	—	*
5052 Cut Off Allotment	40	1	C	1	0	1	S	Fa,Wi	—	*
5501 Flatiron	2,450	1	M	333	0	333	C	Sp,Fa	IMP	*
5502 Sandy Wash	7,224	1	I	707	213	920	S	Wi	IMP	*
5503 Green	450	1	M	39	88	127	C	Sp	IMP	Static
5504 Roatcap	3,070	1	M	264	0	264	C	Sp	REV	*
5505 Transfer Road	2,615	1	M	214	182	396	C	Fa	IMP	Down
5506 Cushman	6,386	1	I	728	0	728	S	Wi	—	*
5507 Pipeline	10,354	1	M	912	129	1,041	S	Wi	—	*
5508 Government Springs	2,170	1	M	125	0	125	C	Sp,Fa	IMP	Up
5509 Coal Creek	320	1	C	42	0	42	C	Sp,Fa	—	*
5510 Bald Hills	206	1	C	22	1	23	C	Sp,Fa	—	*
5511 Shavano Mesa	2,016	1	I	200	126	326	S	Wi	IMP	Up
5512 Franklin Mesa	3,711	1	I	352	95	447	S	Wi	IMP	Static
5513 Dry Creek Basin	5,313	1	I	460	80	540	S	Wi	IMP	Up
5514 East Fork Dry Creek	137	1	C	11	2	13	C	Su	—	*
5515 Olathe Reservoir	200	1	C	17	0	17	S	Su	—	*
5516 Piney Allotment	8,418	1	I	557	31	588	C	Su	PAR	Up
5517 Spring Creek	520	1	C	59	0	59	C	Sp,Su	—	*
5518 Dave Wood Road	2,564	1	M	144	125	269	S	Wi	IMP	Up
5519 Simms Mesa	9,657	1	I	450	0	450	S	Wi,Su	IMP	*
5520 Lower Horsefly	6,040	1	I	307	0	307	S	Wi,Sp	IMP	*
5521 Highway 90	6,214	1	I	313	695	1,008	S	Sp,Fa	IMP	Static
5522 Beaver Hill	8,940	1	M	576	0	576	S	Su,Fa	—	Static
5523 Horsefly	642	1	C	37	65	102	C	Su	—	*
5524 Duckett Draw	273	1	C	20	0	20	C	Sp,Fa	—	*
5525 Dry Creek Place	100	1	C	17	0	17	C	Wi,Sp	—	*
5528 Chaffee Gulch	666	1	C	106	0	106	C	Sp	—	*
5529 Log Hill	3,778	1	I	189	27	216	C	Sp	NOT	*

Table B-1 (continued)

ALLOTMENT IDENTIFICATION No. Name	ACRES OF PUBLIC LAND	NUMBER OF OPERATORS	MANAGE- MENT CATEGORY	GRAZING PREFERENCE			CLASS OF LIVESTOCK	SEASON OF USE	IMPELME- NTATION STATUS	TREND
				Active	Voluntary Non-use/ Suspended	Total				
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
5530 Tinkler Individual	1,319	1	M	20	0	20	C	Su	—	*
5532 Burro Ridge	200	1	M	15	0	25	C	Sp	IMP	Static
5533 Onion Lakes	665	1	C	8	22	30	C	Fa	—	*
5534 Shinn Park	5,690	1	I	316	0	316	S	Sp	IMP	Static
5535 Cedar Creek	160	1	C	6	0	6	C	Sp	—	*
5537 Dry Cedar	4,768	1	M	360	0	360	S	Wi	IMP	*
5538 Rock Ditch	56	1	C	9	0	9	C	Fa	—	*
5540 Dry Gulch	4,273	1	I	779	0	779	S	Sp,Wi	—	*
5541 Buckhorn	493	1	C	18	0	18	S	Sp,Fa	—	*
5545 Henshaw Individual	170	1	C	12	0	12	C	Fa	—	*
5546 Waterdog Basin	400	1	M	34	0	34	C	Sp,Fa	—	*
5547 Slagle Pass	357	1	C	30	0	30	C	Su	—	*
5549 High Park	1,620	1	M	60	0	60	S	Su	—	*
5555 Taylor Draw	325	1	C	15	0	15	C	Sp	—	*
5561 East Fork	80	1	C	14	0	14	S	Su,Fa	—	*
5562 Hillside	120	1	C	40	0	40	C	Su	—	*
5563 Moonshine Park	232	1	C	7	0	7	C	Su	—	*
5565 Tommy Creek	120	1	C	3	0	3	C	Sp	—	*
5566 Cow Creek	520	1	M	70	0	70	C	Su	IMP	Up
5568 Baldy	560	1	I	67	21	88	C	Su	IMP	Up
5569 Hairpin	500	1	M	18	0	18	S	Sp,Fa	—	Up
5570 Cedar	2,125	1	M	315	0	315	C	Sp	NOT	*
5575 Tappan Creek	280	1	C	18	0	18	S	Sp, Fa	—	*

## APPENDIX C

### FOREST MANAGEMENT PROGRAM

Appendix C details the formulas used to calculate the forestry sustained yield data presented in this RMP/EIS.

Sustained yield is the achievement and maintenance in perpetuity of a high-level annual or regular periodic output of the various renewable resources of the public lands consistent with multiple-use.

The sustained yield annual volume is calculated using the following formulas.

#### COMMERCIAL TIMBER

The annual volume of commercial timber to be harvested under sustained yield management is determined by dividing the total number of acres by the combined total years of the stand rotational age (120 years) plus the regeneration lag time (15 years), multiplied by the estimated volume per acre as determined by the forest inventories (approximately 10 MBF per acre).

##### *Calculations:*

Total acres/total years (135) × estimated volume (10 MBF per acre) = Annual Volume.

#### PINYON-JUNIPER WOODLANDS

The annual volume of fuelwood to be harvested under sustained yield management is determined by dividing the total number of acres by the combined total years of the stand rotational age (160 years) plus the regeneration lag time (20 years), multiplied by the estimated volume per acre as determined by the woodland inventories (approximately 9 cords per acre).

##### *Calculations:*

Total acres/total years (180) × estimated volume (9 cords per acre) = Annual Volume.

## APPENDIX D

### VISUAL RESOURCES MANAGEMENT SYSTEM

The Bureau of Land Management's Visual Resource Management (VRM) System provides a method for analyzing and managing visual resources on public lands.

The basis of the VRM System is an inventory of visual resources. The components of the inventory are determinations of scenic quality, numbers of viewers, public attitudes regarding maintenance or modification of the scenery, the distance from which areas are viewed, and the existence of special considerations such as natural area or wilderness designations. All of these components are incorporated into a formula used to determine VRM classification ratings ranging from highly valued visual resource lands (VRM Class I and VRM Class II) to the least valued lands (VRM Class IV). A special fifth class (VRM Class V) is used to identify lands where rehabilitation is needed to improve visual qualities.

The management objectives for each VRM class are:

Class I: To design projects with no visual contrast to a low visual contrast;

Class II: To design projects with a low visual contrast;

Class III: To allow projects with a moderate visual contrast;

Class IV: To allow projects with a high visual contrast; and

Class V: To rehabilitate damaged visual qualities.

A low visually-contrasting project would be visible but should not attract the attention of a casual observer. A high visually-contrasting project would dominate the landscape and be a major focus of a casual observer.

The VRM system is utilized to determine appropriate visual design measures for proposed land uses. The degree of visual contrast between proposed projects and alternatives and the surrounding landscape are often compared as part of an overall environmental analysis of project proposals. As a result of this analysis, measures designed to reduce visual contrast or meet VRM class objectives are often incorporated into the design and construction methods of authorized land uses.

# APPENDIX E

## LANDS AND REALTY PROGRAM

### CLASSIFICATION AND MULTIPLE USE ACT

In the late 1960s, public lands were placed under interim classifications for multiple-use management under authority of the Classification and Multiple Use (C&MU) Act of 1964 (78 Stat. 986). Table E-1 describes the effect and status of the C&MU classifications within the Uncompahgre Basin planning area.

The C&MU Act required the Secretary of Interior to classify public lands for disposal or multiple-use management. This Act allowed for interim classifications that closed public lands to appropriation under the agricultural land laws and to sale under Section 2455 of the Revised Statutes (R.S. 2455). In addition, the BLM was authorized to segregate lands from operation of the general mining and mineral leasing laws, and from disposal under laws other than those specified within the classification orders. The effect of the C&MU Act was to provide the BLM with substantially more management control over the public lands in anticipation of comprehensive public land legislation and to alleviate an unnecessary administrative workload.

The C&MU Act was enacted in anticipation of legislation that would identify the fate and direct the management of the public lands. The Public Land Law Review Commission, established concurrently with the C&MU Act, was delegated the task of formulating legislation for public land management. The C&MU Act provided the BLM with interim management control over public lands until such legislation was enacted.

The C&MU Act also focused on alleviating a costly, time-consuming, and largely non-productive administrative workload that had proliferated since the mid-1940s. Although few public lands qualified for appropriation under the agricultural land laws, homestead applications continued to be filed by the public requiring the BLM to process costly field examinations, adjudications, appeals, and, in nearly all cases, final application rejections.

A rapid increase in land sale applications added to this non-productive administrative workload. Most sale applications were rejected after the BLM determined that sale of the specified tract conflicted with long-term management objectives for the area. In addition, the applicant often failed to consummate the sale in cases where lands were found suitable for sale.

The findings of the Public Land Law Review Commission evolved into the Federal Land Policy and Management Act (FLPMA) of October 21, 1976 (90 Stat. 2743). This Act transferred the right to initiate the identification and disposal of lands suitable for transfer to non-federal ownership from the public to the BLM. This transfer of rights was accomplished by several legislative actions outlined in FLPMA.

The homestead laws and the land sale authority under R.S. 2455 were repealed in Sections 702 and 703 of FLPMA. The public could no longer apply for and acquire public lands under these authorities. The BLM was further directed to retain public lands

“in Federal ownership, unless as the result of the land use planning procedure provided for in this Act, it is determined that disposal of a particular tract will serve the national interest.”

In addition, FLPMA established goals and objectives for land use planning and a mandate for the BLM to manage public lands on the basis of multiple-use and sustained yield principals. This Act also established that

“uniform procedures for any disposal of public land, acquisition of non-federal land for public purposes, and the exchange of such lands be established by statute, requiring each disposal, acquisition, and exchange to be consistent with the prescribed mission of the department or agency involved, and reserving to the Congress review of disposals in excess of a specified acreage.”

The C&MU classifications within the Uncompahgre Basin planning area were reviewed in 1981 as part of a withdrawal review requirement outlined in Sections 102 and 204 of FLPMA and Section 603 of the Departmental Manual. These interim classifications were determined to be unnecessary as FLPMA had transferred the right to identify and dispose of public lands to the BLM if the disposal is in accordance with land use plans. By Colorado BLM State Director's Order, nearly all of the C&MU classifications within the Uncompahgre Basin planning area were terminated (see Table E-1). Termination of these classifications was determined to neither limit or broaden the management or affect the status of these public lands.

Table E-1

DESCRIPTION AND STATUS OF C&MU<sup>1</sup> CLASSIFICATIONS WITHIN THE UNCOMPAHGRE BASIN PLANNING AREA

SERIAL NUMBER	DATE OF CLASSIFICATION	FEDERAL REGISTER NOTICE (date and page)	ACRES INVOLVED	EFFECT OF CLASSIFICATION	STATUS AND FEDERAL REGISTER NOTICE (F.R.) (date and page)
C-2285	9/13/67 10/30/70	9/28/67; p. 13602 11/5/70; pp. 17064-65	249,350 23,082 <sup>2</sup>	Closed to appropriation under the agricultural land laws, and to sale under R.S. 2455. <sup>3</sup>	Revoked 12/15/81 F.R. 11/17/81; pp. 55012-13
C-2286	9/12/67 2/13/69	9/27/67; p. 13531 2/20/69; p. 2436	90,768 640	Closed to appropriation under the agricultural land laws, and to sale under R.S. 2455.	Revoked 12/15/81 F.R. 11/17/81; pp. 55012-13
C-2287	9/13/67	9/20/67; p. 13297	44,458	Closed to appropriation under the agricultural land laws, and to sale under R.S. 2455.	Revoked 12/15/81 F.R. 11/17/81; pp. 55012-13
C-3656	6/4/68	6/13/68; p. 8681	63,621	Closed to appropriation under the agricultural land laws, and to sale under R.S. 2455. Segregated Needle Rock Landmark and Crawford Site from operation of mining laws.	Revoked 12/15/81, except for segregation for Needle Rock Landmark and Crawford Site. F.R. 11/17/81; pp. 55012-13
C-3657	6/7/68	6/18/68; p. 8852	529	Classified for disposal by exchange under Section 8 of the Taylor Grazing Act.	Presently in effect.
C-11562	11/19/70	12/1/70; p. 18299	14,744	Closed to appropriation under the agricultural land laws, and to sale under R.S. 2455.	Revoked 12/15/81 F.R. 11/17/81; pp. 55012-13
C-15565	11/20/70	12/1/70; pp. 18299-300	1,409	Classified for disposal; segregated from operation of mining laws and to disposition under laws other than the form of disposal for which the parcel was classified. Forms of disposal by tract are (in acres): Recreation and Public Purposes Act: Unintentional Trespass Sale Act: Sale under Revised Statutes 2455: Exchange under Section 8 Taylor Grazing Act: Exchange (under Section 8 Taylor Grazing Act) or Sale (under Revised Statutes 2455):	Revoked on 9/26/80 F.R. 10/8/80; p.66877    347.40 5.00 239.00 697.38 120.00

## Notes:

<sup>1</sup> C&MU = Classification and Multiple Use Act.<sup>2</sup> Some of this acreage is in the Grand Junction BLM District.<sup>3</sup> R.S. 2455

## **CRITERIA FOR LAND ACQUISITION**

The following eleven criteria have been developed for use as a screening mechanism in determining the suitability of non-federal lands for acquisition by the United States:

1. Private lands within areas recommended as suitable for designation as wilderness or adjacent to such areas where they add to the manageability and scenic value of the unit.

2. Private lands needed for management of wild and scenic rivers and wild and scenic study rivers.

3. Land adjacent to and inholdings within special recreation management areas and high value recreation areas.

4. Potential national or historic trails.

5. Potential natural or research natural areas or areas for cultural or natural history designation.

6. Potential areas of critical environmental concern.

7. Habitat areas of threatened or endangered species.

8. Aquatic, riparian, and wetland habitat areas (streams, rivers, lakes, ponds).

9. Critical/crucial big game winter range.

10. Floodplain areas (100-year flood) as defined in Executive Order 11988, dated May 24, 1977.

11. Private land that would improve public access.

# APPENDIX F

## ECONOMIC DATA

The tables in Appendix F present data derived from several sources and models. The Economics section of Chapter Two incorporates this data.

Table F-1  
PERSONAL INCOME BY MAJOR SOURCES IN THE PLANNING AREA IN 1984

SECTOR	COUNTY				TOTALS
	Delta	Gunnison	Montrose	Ouray	
(thousands of 1983 dollars <sup>1</sup> )					
Farming	1,527	1,547	5,617	299	8,990
Agricultural Services (etc.)	1,051	268	845	74	2,238
Minerals	13,537	16,489	13,544	D <sup>2</sup>	43,570
Construction	5,937	5,346	7,617	371	19,271
Manufacturing	5,976	2,669	9,709	95	18,449
Transportation; Public Utilities	7,041	3,498	D	D	10,539
Wholesale Trade	3,436	1,124	5,770	L <sup>3</sup>	10,330
Retail Trade	10,889	9,770	15,816	1,334	37,809
Fire	3,685	3,704	5,598	675	13,662
Services	10,721	11,216	D	999	22,936
Government	21,314	17,719	27,414	1,804	68,251
<b>TOTALS</b>	<b>85,114</b>	<b>73,350</b>	<b>91,930</b>	<b>5,651</b>	<b>256,045</b>

Source: Bureau of Economic Analysis.

Notes:

<sup>1</sup> BEA data inflated to give 1983 values by deflators taken from survey of current business.

<sup>2</sup> D = Not included due to problems of disclosure; totals do not reflect these figures.

<sup>3</sup> L = Less than \$50,000; totals do not reflect these figures.

**APPENDIX F**

Table F-2

**ESTIMATED FISHING EXPENDITURES AND RVDs  
BY COUNTY IN 1981**

COUNTY	RECREATION VISITOR DAYS	EXPENDITURES (in millions of 1983 dollars)
Delta	27,268	5.5
Gunnison	123,755	24.8
Montrose	10,488	2.1
Ouray	4,195	0.8
<b>TOTALS</b>	<b>165,706</b>	<b>33.2</b>

Sources: Colorado Division of Wildlife, personal communication, 1984.  
Colorado Region 10 (McKeen, 1983).

Table F-3

**HUNTING RVDs AND EXPENDITURES IN 1982**

SPECIES	RECREATION VISITOR DAYS	EXPENDITURES (thousands of 1983 dollars)
Bear; other big game	12,388	47
Deer	102,891	26,964
Elk	116,251	8,995
Small game	140,346	1,068
<b>TOTAL</b>	<b>371,876</b>	<b>37,074</b>

Source: Colorado Division of Wildlife.

Table F-4

**TOURISM EXPENDITURES AND RELATED  
EMPLOYMENT**

COUNTY	EXPENDITURES (thousands of 1983 dollars)	PERSONS IN TOURISM- RELATED EMPLOYMENT
Delta	9,580	261
Gunnison	36,980	1,034
Montrose	17,356	505
Ouray	8,367	237
<b>TOTAL</b>	<b>72,283</b>	<b>2,037</b>

Source: Business Research Division, 1980.

## **APPENDIX G**

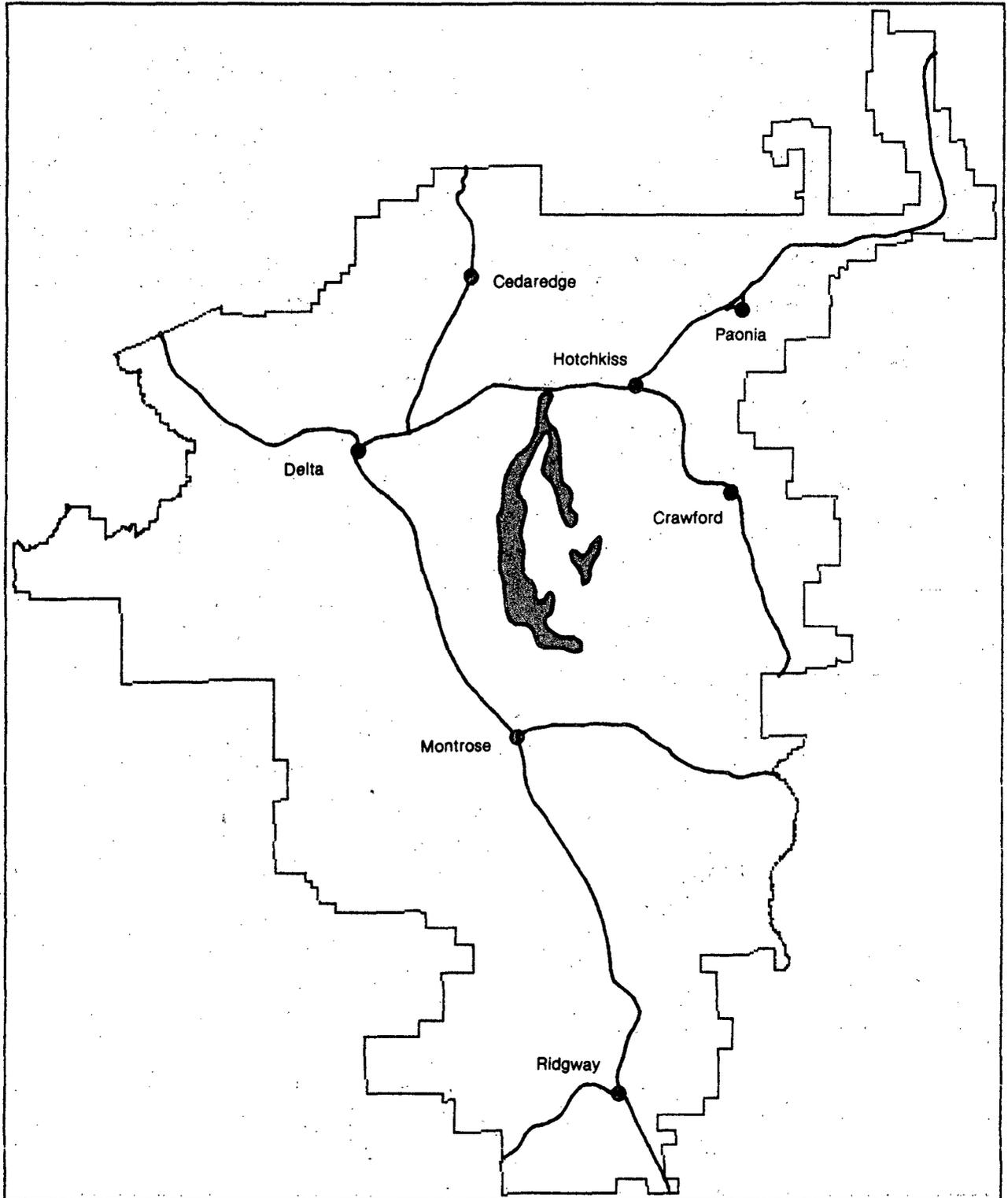
### **OFF-ROAD VEHICLE PROGRAM**

Off-road vehicle (ORV) designations are made in each of the four alternatives in response to issues (Chapter One) and resource needs. These designations are described in the prescriptions for each management unit (Chapter Three) where designations are needed. Any areas within management units that lack an ORV designation are managed as open to ORV use. All ORV designations made in the RMP Record of Decision will be final and implemented as stated.

Maps of ORV designations for each alternative are provided on the following pages. Additional maps showing the specific roads and trails to be designated as open for travel in areas where vehicle use is limited to designated roads and trails are available from the Montrose BLM District Office (the address and phone number are in the RMP/EIS cover letter).

# CURRENT MANAGEMENT

## Off Road Vehicle Designation Map



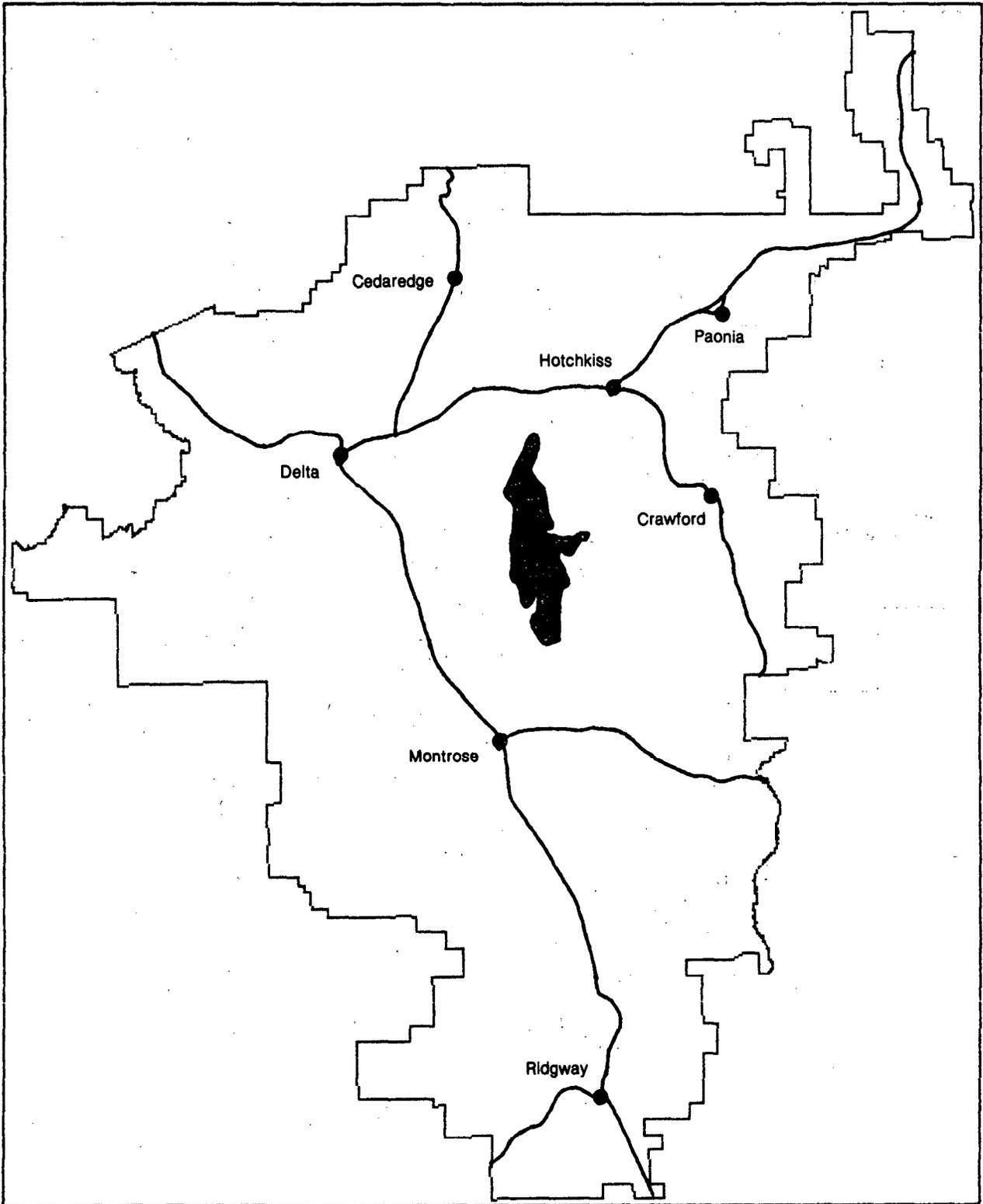
**LIMITED:** Areas Where Off-road Vehicle Use Would be Limited to Designated Roads and Trails, Either Seasonally or Year-round.



**Scale: 1" = 10 Miles**

# CURRENT MANAGEMENT

## Off Road Vehicle Designation Map



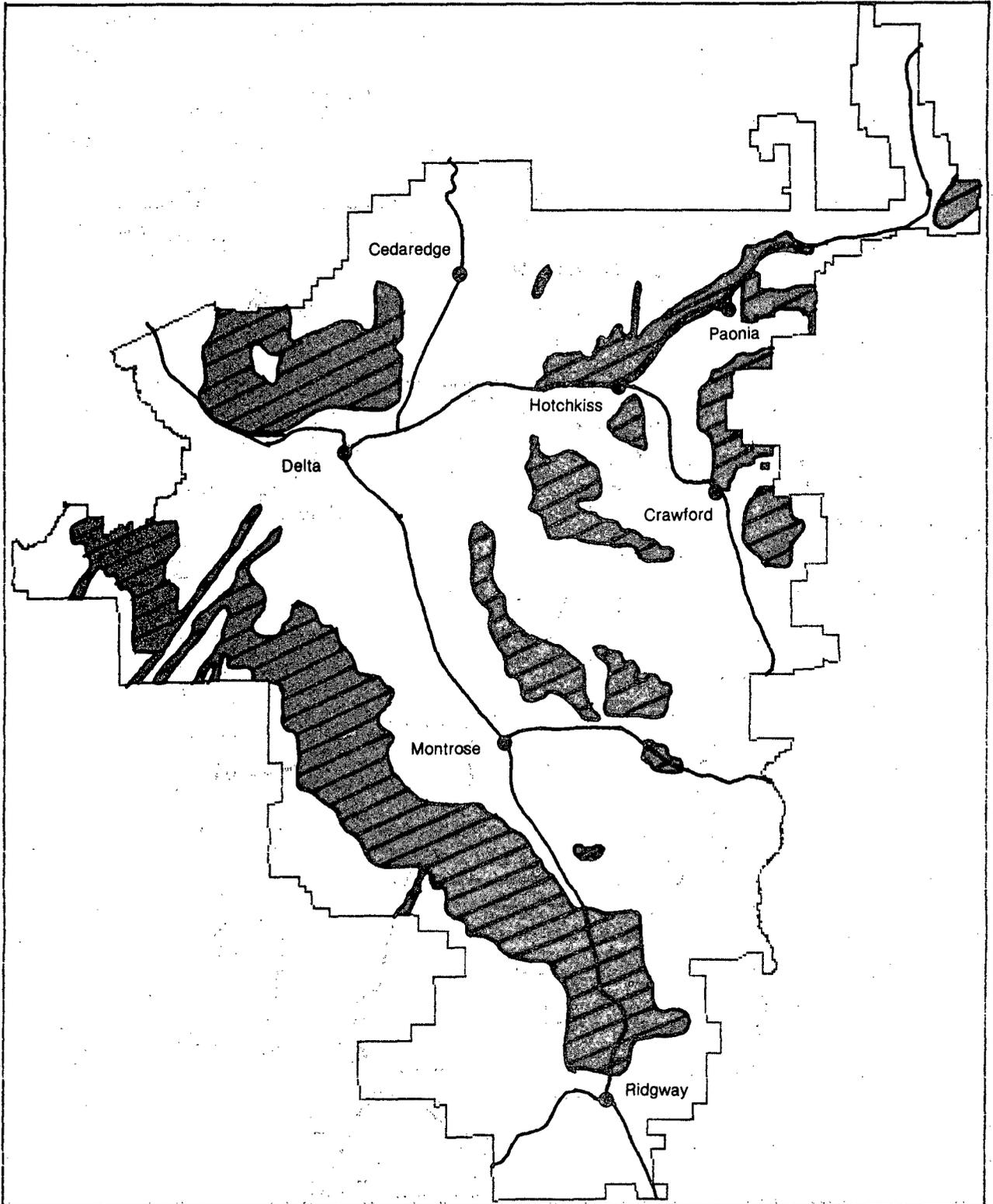
**CLOSED:** Areas Which Would be Closed to Off-road Vehicle Use Year-round.



**Scale: 1" = 10 Miles**

# PRODUCTION ALTERNATIVE

## Off Road Vehicle Designation Map



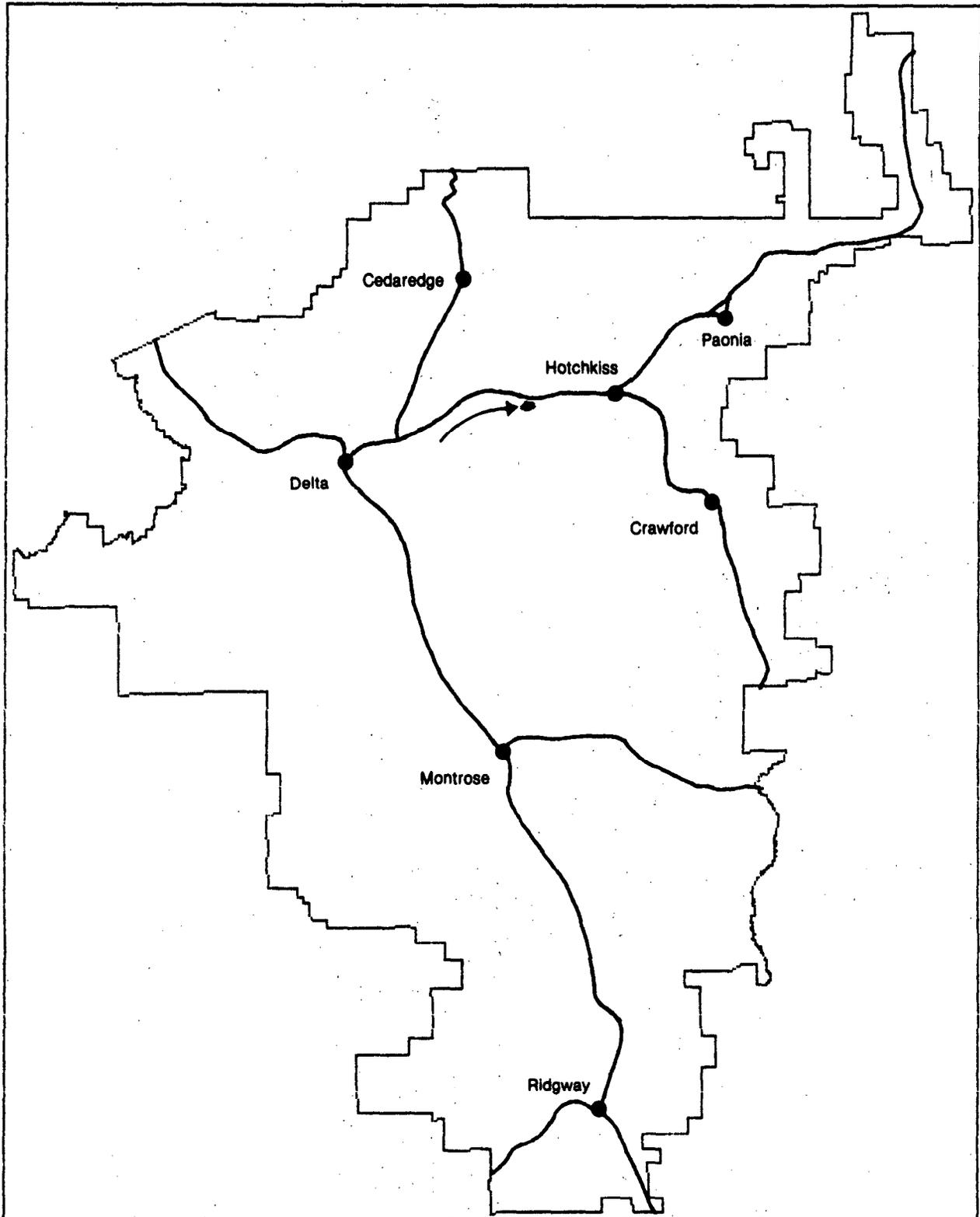
**LIMITED** Areas Where Off-road Vehicle Use Would be Limited to Designated Roads and Trails, Either Seasonally or Year-round.



Scale: 1" = 10 Miles

# PRODUCTION ALTERNATIVE

## Off Road Vehicle Designation Map



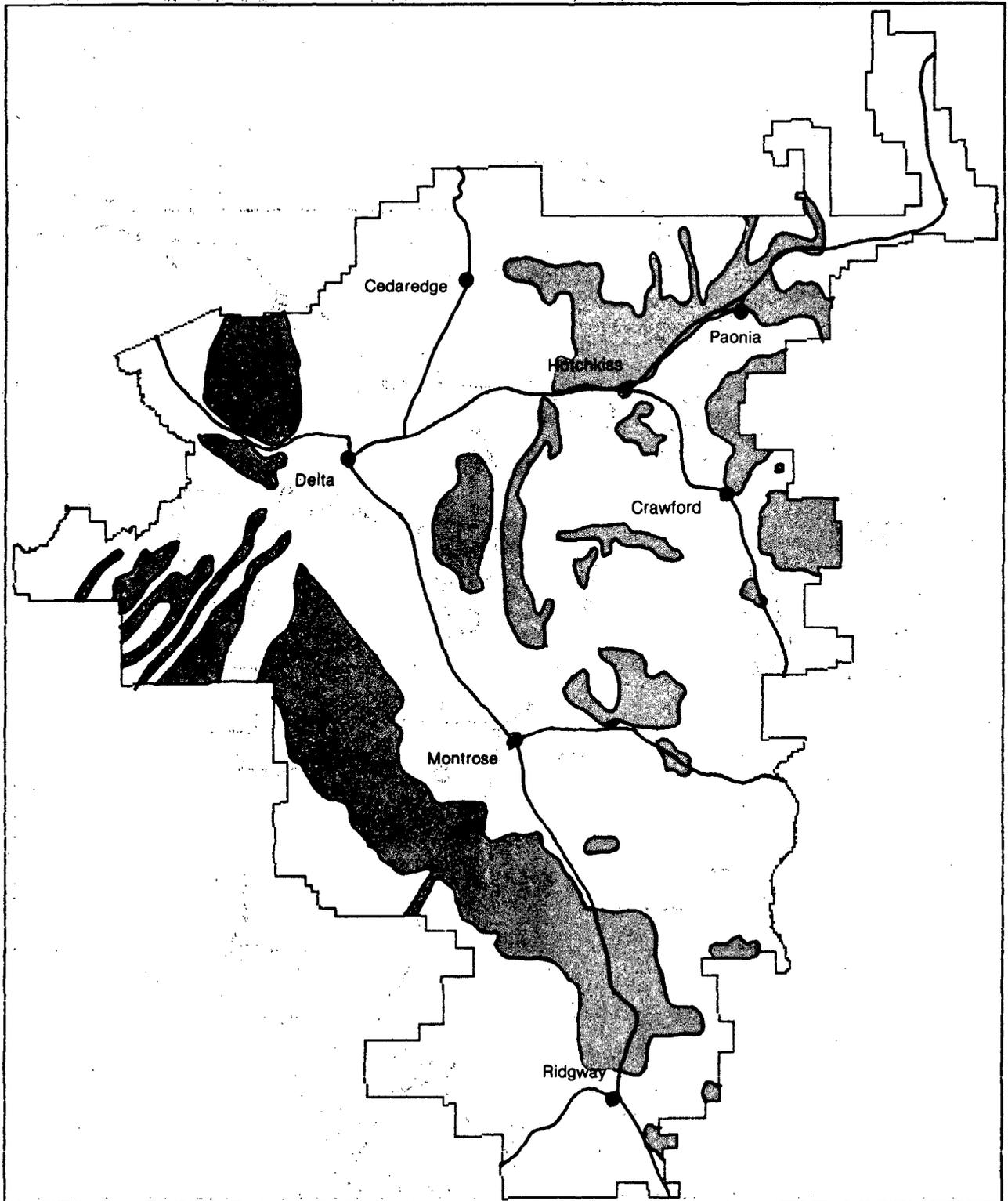
**CLOSED:** Areas Which Would be Closed to Off-road Vehicle Use Year-round.



**Scale: 1" = 10 Miles**

# CONSERVATION ALTERNATIVE

## Off Road Vehicle Designation Map



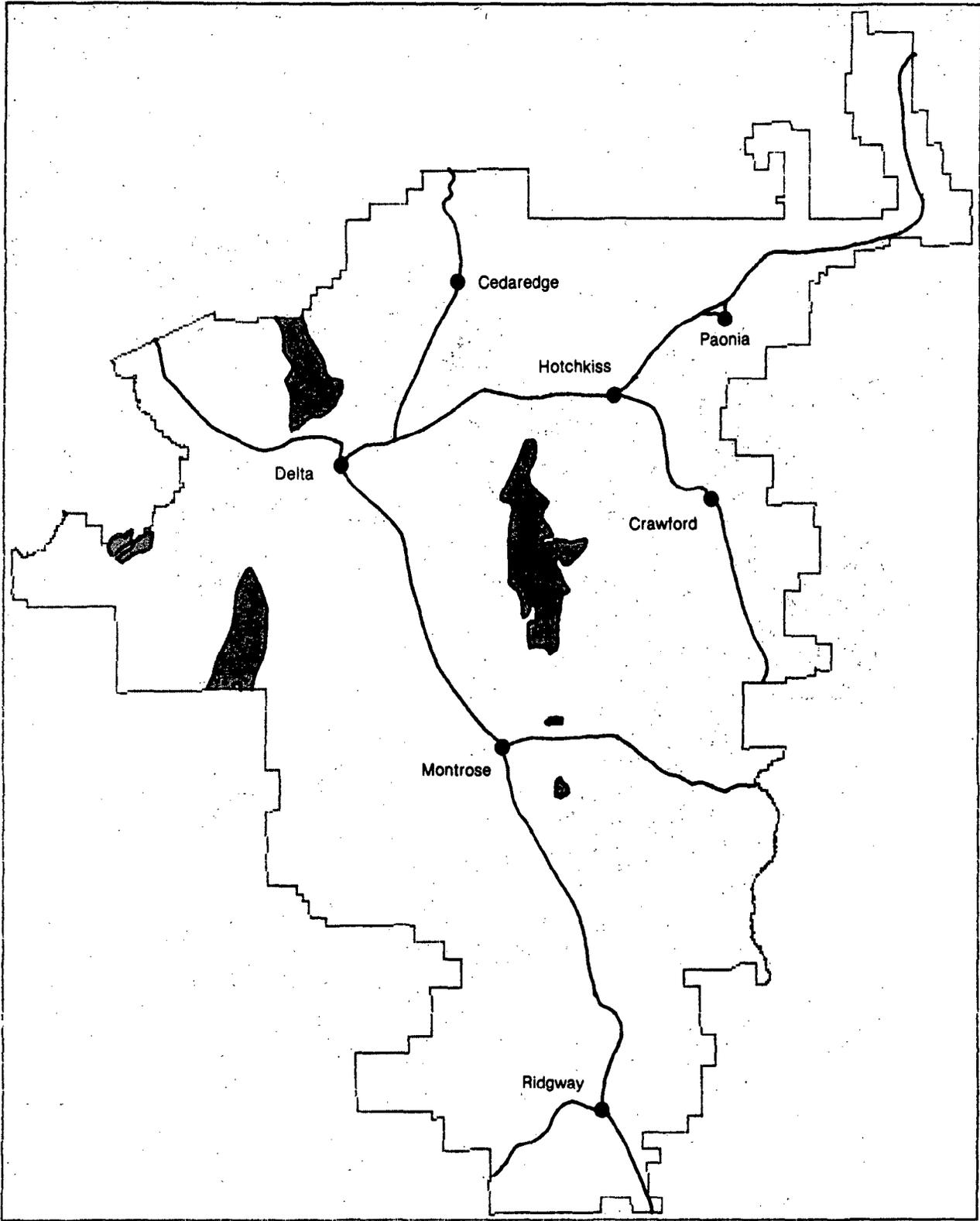
**LIMITED:** Areas Where Off-Road Vehicle Use Would be Limited to Designated Roads and Trails, Either Seasonally or Year-round.



**Scale: 1" = 10 Miles**

# CONSERVATION ALTERNATIVE

## Off Road Vehicle Designation Map



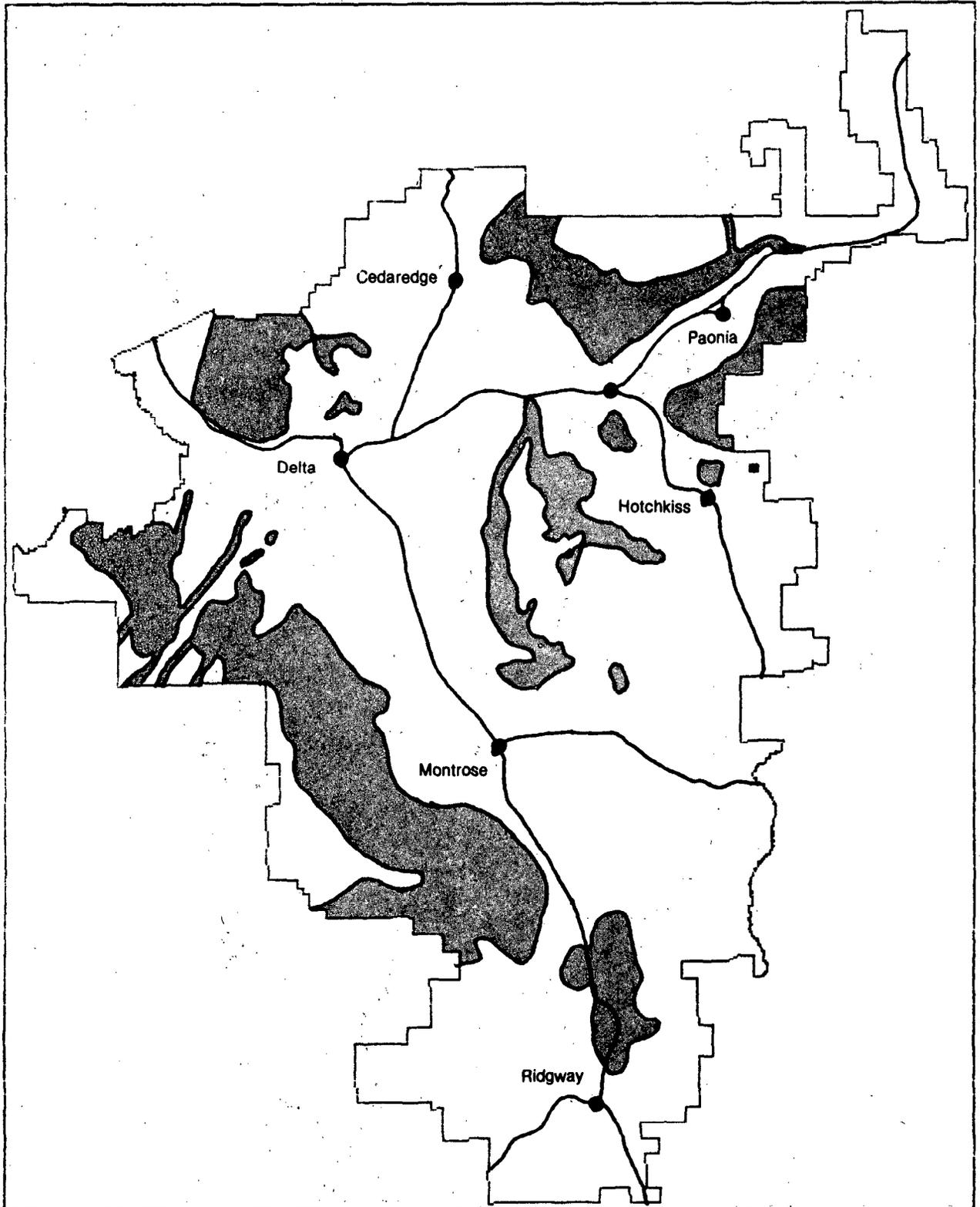
**CLOSED:** Areas Which Would be Closed to Off-road Vehicle Use Year-round.



**Scale: 1" = 10 Miles**

# PREFERRED ALTERNATIVE

## Off Road Vehicle Designation Map



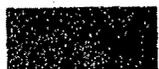
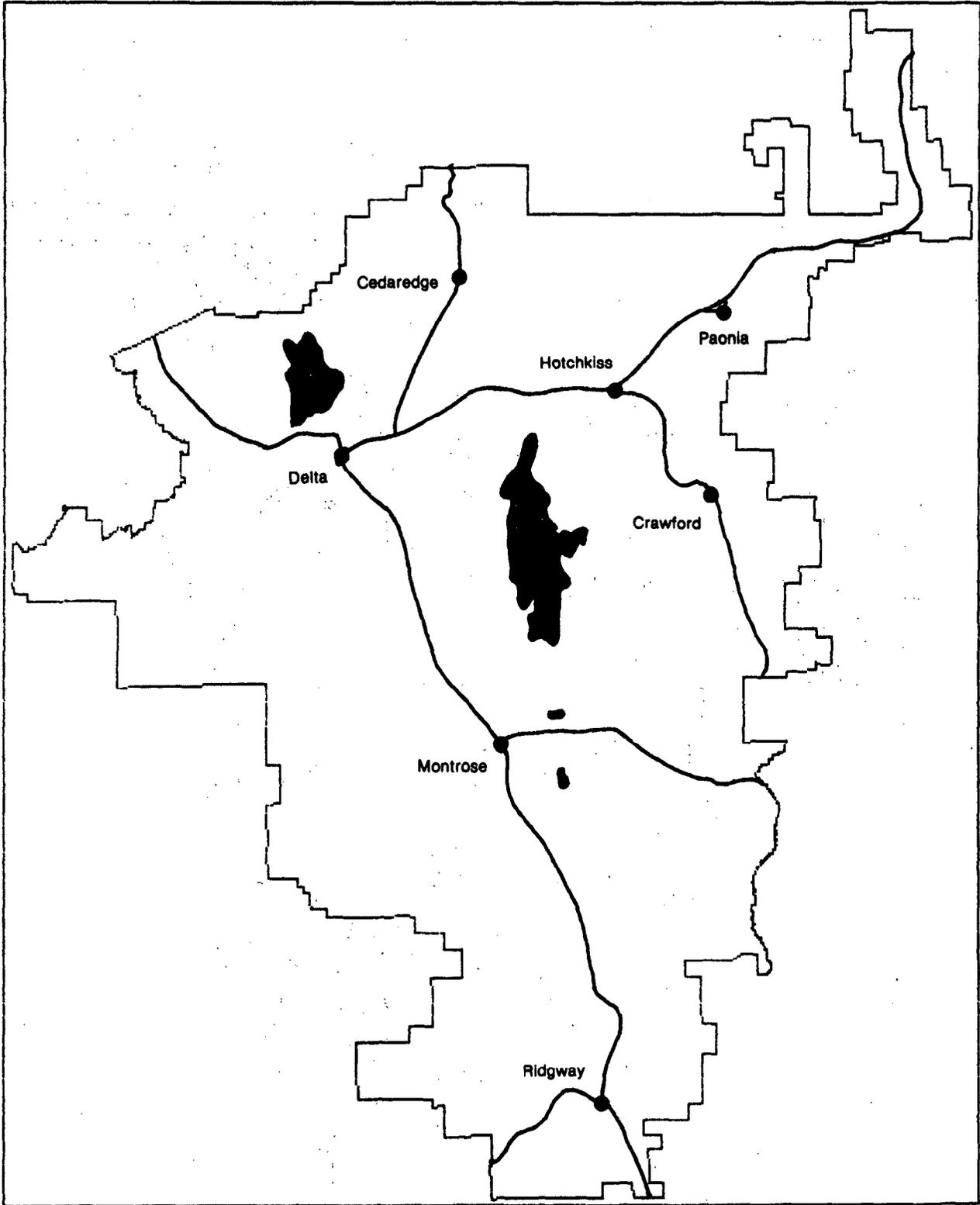
**LIMITED:** Areas Where Off-road Vehicle Use Would be Limited to Designated Roads and Trails, Either Seasonally or Year-round.



Scale: 1" = 10 Miles

# PREFERRED ALTERNATIVE

## Off Road Vehicle Designation Map



**CLOSED:** Areas Which Would be Closed to Off-road Vehicle Use Year-round.



**Scale: 1" = 10 Miles**

# APPENDIX H

## MITIGATING MEASURES

Appendix H lists examples of possible mitigating measures which could be incorporated into use authorizations and activity plans to protect specific resources that are identified below. This list is not intended to be a comprehensive listing of all possible mitigating measures.

### MINERAL RESOURCES

Requirement for fencing  
Relocation of surface facilities  
Requirement for phase-in method of development

### SOIL AND WATER RESOURCES

Restriction of surface disturbances along waterways  
Requirement for waterbars and culverts  
Restrictions on forage utilization levels  
Closure and rehabilitation of roads

### RIPARIAN AREAS

Requirement for fencing  
Closure and rehabilitation of roads  
Restrictions on forage utilization levels  
Reclamation of disturbed areas

### THREATENED, ENDANGERED, AND SENSITIVE SPECIES

Relocation of surface-disturbing activities  
Relocation of the individual plant or animal  
Off-site replacement of critical habitat

### WILDLIFE HABITAT

Development of drop structures on streams  
Rehabilitation of disturbed sites  
Restrictions on forage utilization levels  
Seasonal or permanent road closures  
Requirement for increased edge areas  
Limitations on size of disturbances

### LIVESTOCK GRAZING

Requirement for reseeding of disturbed areas with palatable species  
Requirement for fencing of areas hazardous to livestock  
Development of alternative water sources  
Installation of cattleguards

### FORESTRY

Requirement to leave seed trees  
Requirement to plant trees  
Restrictions on burning  
Requirement for harvest prior to disturbance

### RECREATION

Acquisition of alternative access  
Alterations in project design  
Relocation of roads  
Requirement for fencing of recreational sites

### CULTURAL AND PALEONTOLOGICAL RESOURCES

Restrictions on road construction  
Requirement for intensive testing and excavation  
Relocation of surface-disturbing activities  
Requirement for on-site inspections during project development

**ACRONYMS,  
GLOSSARY,  
AND  
REFERENCES**

# ACRONYMS

<b>ACEC:</b> Area of Critical Environmental Concern	<b>NEPA:</b> National Environmental Policy Act
<b>AMP:</b> Allotment Management Plan	<b>NPS:</b> National Park Service
<b>APD:</b> Application for Permit to Drill	<b>NRHP:</b> National Register of Historic Places
<b>AUM:</b> Animal Unit Month	<b>NSO:</b> No Surface Occupancy
<b>BLM:</b> Bureau of Land Management	<b>NWPS:</b> National Wilderness Preservation System
<b>BOM:</b> Bureau of Mines	<b>ONA:</b> Outstanding Natural Area
<b>BOR:</b> Bureau of Reclamation	<b>ORV:</b> Off-Road Vehicle
<b>C&amp;MU:</b> Classification and Multiple Use Act	<b>PLO:</b> Public Land Order
<b>CEQ:</b> Council on Environmental Quality	<b>PSD:</b> Prevention of Significant Deterioration
<b>CFR:</b> Code of Federal Regulations	<b>RAMP:</b> Recreation Area Management Plan
<b>cfs:</b> cubic feet per second	<b>R&amp;PP:</b> Recreation and Public Purposes Act
<b>CUEA:</b> Colorado Ute Electric Association	<b>RCL:</b> Resource Capability Level
<b>DMEA:</b> Delta-Montrose Electric Association	<b>RMP:</b> Resource Management Plan
<b>DOE:</b> Department of Energy	<b>RNA:</b> Research Natural Area
<b>DOW:</b> Colorado Division of Wildlife	<b>ROD:</b> Record of Decision
<b>EA:</b> Environmental Assessment	<b>RPS:</b> Rangeland Program Summary
<b>EIS:</b> Environmental Impact Statement	<b>RVD:</b> Recreation Visitor Day
<b>EPA:</b> Environmental Protection Agency	<b>SCS:</b> Soil Conservation Service
<b>ERMA:</b> Extensive Recreation Management Area	<b>SMPA:</b> San Miguel Power Association
<b>FERC:</b> Federal Energy Regulatory Commission	<b>SRMA:</b> Special Recreation Management Area
<b>FLPMA:</b> Federal Land Policy and Management Act	<b>T&amp;E:</b> Threatened and Endangered
<b>FMP:</b> Forest Management Plan	<b>TDS:</b> Total Dissolved Solids
<b>FMU:</b> Forest Management Unit	<b>TPCC:</b> Timber Production Capabilities Classification
<b>GMU:</b> Game Management Unit	<b>TSP:</b> Total Suspended Particulates
<b>HMP:</b> Habitat Management Plan	<b>UBRA:</b> Uncompahgre Basin Resource Area
<b>IBLA:</b> Interior Board of Land Appeals	<b>USDA:</b> U.S. Department of Agriculture
<b>IMP:</b> Interim Management Policy	<b>USDI:</b> U.S. Department of the Interior
<b>KGS:</b> Known Geologic Structure	<b>USFS:</b> U.S. Forest Service
<b>kv:</b> kilovolt	<b>USFWS:</b> U.S. Fish and Wildlife Service
<b>MBF:</b> Thousand Board Feet	<b>USGS:</b> U.S. Geological Survey
<b>MFP:</b> Management Framework Plan	<b>USLE:</b> Universal Soil Loss Equation
<b>MSA:</b> Management Situation Analysis	<b>VRM:</b> Visual Resource Management
	<b>WAPA:</b> Western Area Power Administration
	<b>WSA:</b> Wilderness Study Area

# GLOSSARY

**ACTIVE GRAZING PREFERENCE.** That portion of the grazing preference in AUMs available to be licensed for use during any one grazing year.

**ACTIVITY PLANNING.** Site-specific planning which precedes actual development; the most detailed level of BLM planning.

**AIR QUALITY CLASSES.** Classifications established under the Prevention of Significant Deterioration portion of the Clean Air Act which limits the amount of air pollution considered significant within an area. Class I applies to areas where almost any change in air quality would be significant; Class II applies to areas where the deterioration normally accompanying moderate well-controlled growth would be insignificant; and Class III applies to areas where industrial deterioration would generally be insignificant.

**ALLOTMENT.** An area of land where one or more operators graze their livestock. It generally consists of public lands but may include parcels of private or state-owned lands. The number of livestock and period of use are stipulated for each allotment.

**ALLOTMENT CATEGORIZATION.** As an aid in prioritizing grazing allotments for grazing management system development, all allotments have been tentatively placed into one of three categories: (1) Maintain or "M"; (2) Improve or "I"; and (3) Custodial or "C". Allotments within each category do not have to meet all the criteria to be managed according to the category objectives. Category criteria are:

**"M" (MAINTAIN) CATEGORY CRITERIA.** Present range condition is satisfactory; allotments have moderate or high resource production potential (or trend is moving in that direction); no serious resource-use conflicts/controversy exist; opportunities may exist for positive economic return from public investments; and present management appears satisfactory.

**"I" (IMPROVE) CATEGORY CRITERIA.** Present range condition is unsatisfactory; allotments have moderate to high resource production potential and are producing at low to moderate levels; serious resource-use conflicts/controversy exist; opportunities exist for positive economic return from public investments; and present management appears unsatisfactory.

**"C" (CUSTODIAL) CATEGORY CRITERIA.** Present range condition is not a factor; allotment have low resource production potential and are producing near their potential; limited resource-use conflicts/controversy may exist; opportunities for positive economic return on public investments do not exist or are constrained by technological or economic factors; and present management appears satisfactory or is the only logical practice under existing resource conditions.

**ALLOTMENT MANAGEMENT PLAN (AMP).** A concisely written program of livestock grazing management, including supportive measures if required, designed to attain specific multiple-use management goals in a grazing allotment.

**ALLOWABLE CUT.** The amount of timber which can be harvested on an annual or decadal basis consistent with the principle of sustained yield. The allowable cut includes all planned timber harvest volumes exclusive of such products as Christmas trees, branches, and cones.

**ALLUVIAL SOIL.** A soil developing from recently deposited alluvium and exhibiting essentially no horizon development or modification of the recently deposited materials.

**ALLUVIUM.** Clay, silt, sand, gravel, or other rock materials transported by flowing water. Deposited in comparatively recent geologic time as sorted or semisorted sediment in riverbeds, estuaries, floodplains, lakes, and shores, and in fans at the base of mountain slopes.

**AMBIENT AIR QUALITY.** The state of the atmosphere at ground level as defined by the range of measured and/or predicted ambient concentrations of all significant pollutants for all averaging periods of interest.

**ANIMAL UNIT MONTH (AUM).** The amount of forage necessary to sustain one cow or its equivalent for a period of one month.

**AQUATIC.** Living or growing in or on the water.

**AREA OF CRITICAL ENVIRONMENTAL CONCERN (ACEC).** An area established through the planning process as provided in FLPMA where special management attention is required (when such areas are developed or used or where no development is required) to protect and prevent irreparable damage to important historic, cultural, or scenic values; or to fish and wildlife resources or other natural systems or processes; or to protect life and afford safety from natural hazards.

**BIG GAME.** Larger species of wildlife that are hunted, such as elk, deer, bighorn sheep, and pronghorn antelope.

**BLOWOUT.** A small area from which wind erosion has removed all or almost all of the soil and soil material.

**BOARD FOOT.** Measure of amount of timber equivalent to a piece 12" x 12" x 1".

**CANDIDATE SPECIES.** Any species not yet officially listed but which are undergoing a status review or are proposed for listing according to *Federal Register* notices published by the Secretary of the Interior or the Secretary of Commerce.

**COAL UNSUITABILITY CRITERIA.** Regulations developed by the BLM which use the ability of an area's surface resources to accept or absorb the impact of coal mining activities as a means to determine the suitability or unsuitability of the area for coal mining.

**COMMERCIAL FOREST LAND.** Forest land (of all species of trees) which is producing or is capable of producing 20 cubic feet per acre per year.

**CONDITIONAL FIRE SUPPRESSION.** Areas where the intensity of fire suppression actions is not fixed and will vary with the conditions existing at the time the fire starts. These areas are managed on a least-cost basis.

**CRUCIAL WILDLIFE RANGE.** Parts of the habitat necessary to sustain a wildlife population at critical periods of its life cycle. This is often a limiting factor on the population, such as breeding habitat, winter habitat, etc.

**CULTURAL RESOURCES.** Those fragile and non-renewable remains of human activity, occupation, or endeavor reflected in districts, sites, structures, buildings, objects, artifacts, ruins, works of art, architecture, and natural features that were of importance in human events.

## CULTURAL RESOURCES INVENTORY.

**CLASS I.** An existing data survey. This is an inventory of a study area to (1) provide a narrative overview of cultural resources by using existing information, and (2) compile existing cultural resources site record data on which to base the development of the BLM's site record system.

**CLASS II.** A sampling field inventory designed to locate, from surface and exposed profile indications, all cultural resource sites within a portion of an area so that an estimate can be made of the cultural resources for the entire area.

**CLASS III.** An intensive field inventory designed to locate, from surface and exposed profile indications, all cultural resource sites in an area. Upon its completion, no further cultural resources inventory work is normally needed.

**CUMULATIVE IMPACTS.** The collective and aggregate impacts of all actions affecting a particular resource.

**DIRECTIONAL DRILLING.** Drilling borehole wherein course of hole is planned before drilling. Such holes are usually drilled with rotary equipment at an angle to the vertical and are useful in avoiding obstacles or in reaching side areas or mineral estate beneath restricted surface.

**DIVERSITY.** The relative abundance of wildlife species, plant species, communities, habitats, or habitat features per unit of area.

**EASEMENT.** Right afforded a person or agency to make limited use of another's real property for access or other purposes.

**ENDANGERED SPECIES.** Any species which is in danger of extinction throughout all or a significant portion of its range.

**ENVIRONMENTAL ASSESSMENT (EA).** A concise public document prepared to provide sufficient evidence and analysis for determining whether to prepare an environmental impact statement or a finding of no significant impact. It includes a brief discussion of the need for the proposal, alternatives considered, environmental impact of the proposed action and alternatives, and a list of agencies and individuals consulted.

**ENVIRONMENTAL IMPACT STATEMENT (EIS).** A formal public document prepared to analyze the impacts on the environment of a proposed project or action and released for comment and review. An EIS must meet the requirements of NEPA, CEQ guidelines, and directives of the agency responsible for the proposed project or action.

**EYRIE.** A cliff nest of a raptor.

**FEDERAL LAND POLICY AND MANAGEMENT ACT OF 1976 (FLPMA).** Public Law 94-579 signed by the President on October 21, 1976. Establishes public land policy for management of lands administered by the Bureau of Land Management. FLPMA specifies several key directions for the Bureau, notably (1) management be on the basis of multiple-use and sustained yield, (2) land use plans be prepared to guide management actions, (3) public lands be managed for the protection, development, and enhancement of resources, (4) public lands be retained in federal ownership, and (5) public participation be utilized in reaching management decisions.

**FORAGE.** All browse and herbaceous foods that are available to grazing animals.

**FOREST MANAGEMENT.** The application of business methods and technical forestry principles to the operation of a forest property.

**FOREST MANAGEMENT PLAN (FMP).** A detailed activity plan identifying the objectives and techniques used to harvest the forest resource of a specific area.

**GRAZING PREFERENCE.** The total number of animal unit months of livestock use on public lands apportioned and attached to base property owned or controlled by a permittee. Some of the total grazing preference may have been suspended in past administrative actions. That portion of the grazing preference that is not suspended is the active grazing preference.

**GRAZING SYSTEM.** Scheduled grazing use and non-use of an allotment to reach identified goals or objectives by improving the quality and quantity of vegetation.

**GROUND COVER.** The area of ground surface occupied by the stem(s) of a range plant, as contrasted with the full spread of its herbage or foliage, generally measured at one inch above soil level.

**GROWING SEASON.** Generally, the period of the year during which the temperature of vegetation remains sufficiently high to allow plant growth.

**HABITAT.** A specific set of physical conditions that surround a single species, a group of species, or a large community. In wildlife

management, the major components of habitat are considered to be food, water, cover, and living space.

**HABITAT MANAGEMENT PLAN (HMP).** A written and approved activity plan for a geographical area which identifies habitat management activities to be implemented in achieving specific objectives of planning decisions.

**IMPACT.** The effect, influence, alteration, or imprint caused by an action.

**INTENSIVE FIRE SUPPRESSION.** Areas where a full complement of equipment and work force is used to contain, control, and suppress wildfires.

**INTERIM MANAGEMENT POLICY (IMP).** The Department of Interior policy that mandates the BLM to manage lands under wilderness review so as not to impair wilderness values and to protect the right of Congress to make the wilderness designation decision.

**INVERTEBRATE.** An animal lacking a backbone or spinal column.

**KNOWN GEOLOGIC STRUCTURES (KGS).** A trap in which an accumulation of oil and gas has been discovered by drilling and which is determined to be productive. Its limits include all acreage that is presumptively productive (43 CFR 3100.0-5(a)).

**LAND TREATMENT.** All methods of artificial range improvement and soil stabilization such as reseeding, brush control (chemical and mechanical), pitting, furrowing, water spreading, etc.

**LEASEABLE MINERALS.** Those minerals or materials designated as leaseable under the Mineral Leasing Act of 1920. They include coal, phosphate, asphalt, sulphur, potassium and sodium minerals, and oil and gas. Geothermal resources are also leaseable under the Geothermal Steam Act of 1970.

**LITHIC SITE.** An archaeological site containing debris left from the manufacture, use, or maintenance of flaked stone tools.

**LOCATABLE MINERALS.** Minerals or materials subject to claim and development under the Mining Law of 1872, as amended. Generally includes metallic minerals such as gold and silver, and other materials not subject to lease or sale (some bentonites, limestone, talc, some zeolites, etc.). Whether or not a particular mineral deposit is locatable depends on such factors as quality, quantity, mineability, demand, and marketability.

**LOCATION.** Perfecting the right to a mining claim by discovery of a valuable mineral, monumenting the corners, completing discovery work, posting a notice of location, and recording the claim.

**LONG-TERM.** In this document, refers to the time period extending beyond the 10- to 12-year life of the plan. Long-term impacts would occur over a 20-year period.

**MANAGEMENT FRAMEWORK PLAN (MFP).** A land use plan that establishes land use allocations, multiple-use guidelines, and management objectives for a given planning area. The MFP planning system was used by the BLM until about 1980.

**MANAGEMENT SITUATION ANALYSIS (MSA).** An unpublished companion document to this RMP that provides the background documentation for the development of alternatives. The MSA consists of the Physical Profile, Existing Management Situation, and Capability Analysis.

**MASS WASTING.** Dislodgement and downslope transport of earthen material as a unit, such as in landslides, rockslides, and earthflows.

**MINERAL ENTRY.** Claiming public lands (administered by the BLM) under the Mining Law of 1872 for the purpose of exploiting minerals. May also refer to mineral exploration and development under the mineral leasing laws and the Material Sale Act of 1947.

**MINERAL ESTATE (MINERAL RIGHTS).** The ownership of minerals, including rights necessary for access, exploration, development, mining, ore dressing, and transportation operations.

- MINERAL MATERIALS.** Common varieties of sand, building stone, gravel, clay, moss rock, etc., obtainable under the Minerals Act of 1947, as amended.
- MINING LAW OF 1872.** Provides for claiming and gaining title to locatable minerals on public lands. Also referred to as the "General Mining Laws" or "Mining Laws."
- MITIGATION.** Alleviation or lessening of possible adverse effects on a resource by applying appropriate protective measures or adequate scientific study.
- MONOCLINE.** A geologic structure in which the strata are all inclined in the same direction at a uniform angle of dip.
- MULTIPLE-USE.** Management of the various surface and subsurface resources so that they are jointly utilized in the manner that will best meet the present and future needs of the public, without permanent impairment of the productivity of the land or the quality of the environment.
- NATIONAL ENVIRONMENTAL POLICY ACT OF 1969 (NEPA).** Public Law 91-190. Establishes environmental policy for the nation. Among other items, NEPA requires federal agencies to consider environmental values in decision-making processes.
- NATIONAL REGISTER OF HISTORIC PLACES (NATIONAL REGISTER, NRHP).** A listing of architectural, historical, archaeological, and cultural sites of local, state, or national significance, established by the Historic Preservation Act of 1966 and maintained by the National Park Service.
- NATURALNESS.** Refers to an area that "generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable" (Sec 2(c) of the Wilderness Act of 1964).
- NO SURFACE DISTURBANCE.** Defined on a case-by-case basis when the activity plan for an area is developed. In general, an activity would be allowed so long as it does not interfere with the management objectives of the area.
- NO SURFACE OCCUPANCY (NSO).** A fluid mineral leasing stipulation that prohibits occupancy or disturbance on all or part of the lease surface in order to protect special values or uses. Lessees may exploit the oil and gas or geothermal resources under leases restricted by this stipulation through use of directional drilling from sites outside the no surface occupancy area.
- OFF-ROAD VEHICLE (ORV).** Any motorized vehicle capable of or designed for travel on or immediately over-land, water, or other natural terrain.
- OFF-ROAD VEHICLE DESIGNATIONS.**
- OPEN.** Designated areas and trails where off-road vehicles may be operated (subject to operating regulations and vehicle standards set forth in BLM Manuals 8341 and 8343).
- LIMITED.** Designated areas and trails where the use of off-road vehicles is subject to restrictions such as limiting the number or types of vehicles allowed, dates and times of use (seasonal restrictions), limiting use to existing roads and trails, or limiting use to designated roads and trails. Under the designated roads and trails designation, use would be allowed only on roads and trails that are signed for use. Combinations of restrictions, such as limiting use to certain types of vehicles during certain times of the year, are possible.
- CLOSED.** Designated areas and trails where the use of off-road vehicles is permanently or temporarily prohibited. Emergency use of vehicles is allowed.
- OUTSTANDING NATURAL AREA (ONA).** An area established to preserve scenic values and natural wonders. The preservation of these resources in their natural condition is the primary management objective.
- OVERSTORY.** That portion of a plant community consisting of the taller plants on the site; the forest or woodland canopy.
- PATENT.** A grant made to an individual or group conveying fee simple title to selected public lands.
- PATENTED CLAIM.** A claim on which title has passed from the federal government to the mining claimant under the Mining Law of 1872.
- PLANNING AREA.** The geographical area for which land use and resource management plans are developed and maintained.
- PRESCRIBED FIRE (PRESCRIBED BURNING).** Application of fire to natural fuels under specific conditions of weather, fuel moisture, soil moisture, smoke, and other conditions intended to produce the intensity of heat and rate of spread required to accomplish certain objectives of wildlife habitat or livestock grazing management, and/or hazard reduction.
- PRIMITIVE AND UNCONFINED RECREATION.** Non-motorized and undeveloped types of outdoor recreation.
- PUBLIC LAND.** Any land and interest in land (outside of Alaska) owned by the United States and administered by the Secretary of the Interior through the Bureau of Land Management (BLM).
- RAPTOR.** Bird of prey with sharp talons and strongly curved beaks, e.g. hawks, owls, vultures, eagles.
- RECLAMATION.** Returning disturbed lands to a form and productivity that will be ecologically balanced and in conformity with a predetermined land management plan.
- RECREATION AND PUBLIC PURPOSES ACT (R&PP).** This Act authorizes the Secretary of the Interior to lease or convey public lands for recreational and public purposes under specified conditions to states or their political subdivisions, and to nonprofit corporations and associations.
- RECREATION VISITOR DAY (RVD).** Aggregation of 12 visitor hours, where a visitor hour is the presence of one or more persons on lands and water for outdoor recreation purposes for continuous, intermittent, or simultaneous periods aggregating 60 minutes (one person for one hour).
- RESEARCH NATURAL AREA (RNA).** A land management status which reserves the area for uses that are compatible with the resource of interest and research for which the area was designated.
- RESOURCE AREA.** A geographic portion of a BLM District that is the smallest administrative subdivision in the BLM.
- RESOURCE MANAGEMENT PLAN (RMP).** A land use plan that establishes land use allocations, multiple-use guidelines, and management objectives for a given planning area. The RMP planning system has been used by the BLM since about 1980.
- RIPARIAN.** Situated on or pertaining to the bank of a river, stream, or other body of water. Normally describes plants of all types that grow rooted in the water table or subirrigation zone of streams, ponds, and springs.
- RIPARIAN/AQUATIC SYSTEM.** Interacting system between aquatic and terrestrial situations. Identified by a stream channel and distinctive vegetation that requires or tolerates free or unbound water.
- RIPARIAN ZONE.** An area one-quarter mile wide encompassing riparian and adjacent vegetation.
- ROADLESS.** Refers to the absence of roads that have been constructed and maintained by mechanical means to ensure regular and continuous use.
- ROADS.** Vehicle routes which have been improved and maintained by mechanical means to ensure relatively regular and continuous use. (A way maintained strictly by the passage of vehicles does not constitute a road.)
- SALINITY.** Refers to the solids such as sodium chloride (table salt) and alkali metals that are dissolved in water.

**SCOPING PROCESS.** An early and open public participation process for determining the scope of issues to be addressed and for identifying the significant issues related to a proposed action.

**SEDIMENT YIELD.** The amount of sediment produced in a watershed, expressed as tons, acre-feet, or cubic yards of sediment per unit of drainage area per year.

**SENSITIVE SPECIES.** A species included on the sensitive species list developed by the Colorado State Office pursuant to section CL of Instruction Memorandum No. 80-722 and approved by the State Director.

**SHEET EROSION.** The removal of a fairly uniform layer of soil from the land surface by runoff water.

**SHORT-TIME.** In this document, refers to the 10- to 12-year life of the plan. Short-term impacts would occur within that time period.

**SHUT-IN.** An oil or gas well that is capable of production but is temporarily not producing.

**SOIL ASSOCIATION.** A mapping unit used on general soil maps in which two or more defined taxonomic units occurring together in a characteristic pattern are combined.

**SOIL HORIZON.** A layer of soil approximately parallel to the soil surface with comparatively uniform characteristics.

**SOLITUDE.** The state of being alone or remote from habitations; isolation. A lonely or secluded place. Factors contributing to opportunities for solitude may include size, natural screening, topographic relief, vistas, physiographic variety, and the ability of the user to find a secluded spot.

**SPECIAL RECREATION MANAGEMENT AREA (SRMA).** An area that possesses outstanding recreation resources or where recreation use causes significant user conflicts, visitor safety problems, or resource damage.

**STREAMBANK (and CHANNEL) EROSION.** The removal, transport, deposition, recutting, and bed load movement of material in streams by concentrated water flows.

**SUITABILITY.** As used in the Wilderness Act and in the Federal Land Policy and Management Act refers to a recommendation by the Secretary of Interior or the Secretary of Agriculture that certain federal lands satisfy the definition of wilderness in the Wilderness Act and have been found appropriate for designation as wilderness on the basis of an analysis of the existing and potential uses of the land.

**SUPPLEMENTAL VALUES.** Resources associated with wilderness which contribute to the quality of wilderness areas.

**SUSTAINED YIELD.** The achievement and maintenance in perpetuity of a high-level annual or regular periodic output of the various renewable resources of the public lands consistent with multiple-use.

**TERRESTRIAL.** Living or growing in or on the land.

**THREATENED SPECIES.** Any species or significant population of that species likely to become endangered within the foreseeable future throughout all or a significant portion of its range. Usually includes only those species that have been recognized and listed as threatened by federal and state governments, but may include species categorized as rare, very rare, or depleted.

**TIMBER.** Standing trees, downed trees, or logs which are capable of being measured in board feet.

**TIMBER PRODUCTION CAPABILITY CLASSIFICATION (TPCC).** A classification system based on a forest inventory designed to rate an area's suitability for production of timber or woodland products.

**TOTAL DISSOLVED SOLIDS (TDS).** Salt, or an aggregate of carbonates, bicarbonates, chlorides, sulfates, phosphates, and nitrates of calcium, magnesium, manganese, sodium, potassium, and other cations that form salts.

**TRESPASS.** Any unauthorized use of public land.

**UNDERSTORY.** That portion of a plant community growing underneath the taller plants on the site.

**UNIQUE PLANT ASSOCIATIONS.** Plant communities which (1) occur only in Colorado, (2) are common elsewhere but are represented by only a few occurrences in Colorado, (3) could easily be eliminated from Colorado, or (4) are considered to be in their natural state.

**UNIVERSAL SOIL LOSS EQUATION.** A formula for predicting soil loss resulting from sheet and rill erosion caused by rainfall.

**UTILITY CORRIDOR.** Tract of land varying in width forming passageway through which various commodities such as oil, gas, and electricity are transported.

**UTILIZATION.** The proportion of current year's forage production that was consumed or destroyed by grazing animals; usually expressed as a percentage.

**VALID EXISTING RIGHTS.** Legal interests that attach to a land or mineral estate that cannot be divested from the estate until that interest expires or is relinquished.

**VEGETATION MANIPULATION.** Planned alteration of vegetation communities through use of prescribed fire, plowing, herbicide spraying, or other means to gain desired changes in forage availability, wildlife cover, etc.

**VEGETATION TYPE.** A plant community with immediately distinguishable characteristics based upon and named after the apparent dominant plant species.

**VERTEBRATE.** An animal having a backbone or spinal column.

**VISUAL RESOURCES.** The visible physical features on a landscape, (topography, water, vegetation, animals, structures, and other features) that comprise the scenery of the area.

**VISUAL RESOURCE MANAGEMENT (VRM).** The inventory and planning actions taken to identify visual resource values and to establish objectives for managing those values, and the management actions taken to achieve the visual resource management objectives.

**VISUAL RESOURCE MANAGEMENT CLASSES.** VRM classes identify the degree of acceptable visual change within a characteristic landscape. A classification is assigned to public lands based on the guidelines established for scenic quality, visual sensitivity, and visibility.

**VRM CLASS I.** This classification preserves the existing characteristic landscape and allows for natural ecological changes only. Includes Congressionally authorized areas (wilderness) and areas approved through the RMP where landscape modification activities should be restricted.

**VRM CLASS II.** This classification retains the existing characteristic landscape. The level of change in any of the basic landscape elements due to management activities should be low and not evident.

**VRM CLASS III.** This classification partially retains the existing characteristic landscape. The level of change in any of the basic landscape elements due to management activities may be moderate and evident.

**VRM CLASS IV.** This classification provides for major modifications of the characteristic landscape. The level of change in the basic landscape elements due to management activities can be high. Such activities may dominate the landscape and be the major focus of viewer attention.

**VRM CLASS V.** This classification applies to areas where the characteristic landscape has been so disturbed that rehabilitation is needed. Generally considered an interim short-term classification until rehabilitation or enhancement is completed.

**VISUAL SENSITIVITY.** Visual sensitivity levels are a measure of public concern for scenic quality and existing or proposed visual change.

**VOLUNTARY NON-USE/SUSPENDED.** That portion of the total grazing preference in AUMs temporarily withheld from active grazing use.

**WATERSHED.** Topographical region or area delineated by water draining to a particular water course or body of water.

**WAY.** A vehicle route established and maintained solely by the passage of motor vehicles. A way is not a road.

**WILDERNESS.** An area formally designated by Congress as a part of the National Wilderness Preservation System.

**WILDERNESS CHARACTERISTICS.** Identified by Congress in the Wilderness Act of 1964; namely, size, naturalness, outstanding opportunities for solitude or a primitive and unconfined type of recreation, and supplemental values such as geological, archaeological, historical, ecological, scenic, or other features.

**WILDERNESS INVENTORY.** An evaluation of the public land in the form of a written description and a map showing those lands that meet the wilderness criteria as established under Section 603(a) of FLPMA and Section 2(c) of the Wilderness Act. The lands meeting the criteria will be referred to as WSAs.

**WILDERNESS MANAGEMENT POLICY.** Policy document prescribing the general objectives, policies, and specific activity guidance applicable to all designated BLM wilderness areas. Specific management objectives, requirements, and decisions implementing administrative practices and visitor activities in individual wilderness areas are developed and described in the wilderness management plan for each unit.

**WILDERNESS STUDY AREA (WSA).** An area determined to have wilderness characteristics. Wilderness study areas will be subject to interdisciplinary analysis and public comment to determine wilderness suitability. Suitable areas will be recommended to the President and Congress for designation as wilderness.

**WITHDRAWAL.** An action which restricts the use of public land and segregates the land from the operation of some or all of the public land and mineral laws. Withdrawals are also used to transfer jurisdiction of management of public lands to other federal agencies.

**WOODLANDS.** Plant communities in which trees, often small and characteristically short-bowled relative to their depths of crown, are present but form only an open canopy, the intervening areas being occupied by lower vegetation, commonly grass. Woodland forests contain major and minor forest products (or any wood fibre) that has, or may have, merchantability.

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