COLORADO DESERT BIGHORN SHEEP MANAGEMENT PLAN

BUREAU OF LAND MANAGEMENT
COLORADO DIVISION OF WILDLIFE

This statewide desert bighorn sheep management plan provides the general framework from which to direct our management efforts in the recovery of desert bighorns on BLM administered public lands. This document serves as the activity habitat management plan for the desert bighorn sheep populations in the state. Coordination and support of state, federal, and private organizations and individuals will have a significant role in the success of this program.

GOALS:

1. Facilitate the restoration of desert bighorn sheep into historic range of southwest Colorado on BLM administered public lands in cooperation with the Colorado Division of Wildlife (CDOW) and private landowners.
2. Improve and maintain habitat for a population goal of 500 desert bighorns by 1995 and an overall population of 1,200 bighorns in the early 21st century. These bighorn sheep population goals are subjected to forage availability and compatibility with current livestock grazing management.
3. Provide habitat for an additional 200 bighorns with introductions into two areas: Palisades/Sewemup and Lower Dolores River habitat units.
4. Manage desert bighorn sheep habitat using the guidelines developed in the resource management plans and guidance described in this plan.

POLICY

It is Colorado BLM policy that management for desert bighorn sheep will be given equal consideration with all other uses of the public land as issued in the land use decision-making documents. Other agencies' goals, objectives, and management strategies for desert bighorns will be incorporated into BLMs plans as appropriate. Sheep management objectives will be coordinate with the Uncompahgre National Forest, CDOW, National Park Service, Colorado State University, bighorn sheep societies, sportsmen groups, livestock permittees and other conservation organizations and individuals.

The statewide desert bighorn sheep management plan provides the umbrella for subsequent releases of bighorn sheep as identified in the decision records of the Grand Junction and San Juan/San Miguel Resource Management Plans. Future releases of bighorns must be documented through an environmental assessment or a categorical exclusion review, and approved by the BLM District Manager. The CDOW will prepare a request for each proposed desert bighorn sheep release, and will submit it to the appropriate District Manager in advance of the release. This request will include the release location, proposed release date, and the numbers, age class, and sex of the animals. A specific Memorandum of Understanding may be required if special management conditions exist for managing desert bighorns on public lands.

MANAGEMENT GUIDELINES

General management guidelines to be considered for implementation of other resource management plans and other decisionmaking process:

- Encourage a change in class of livestock from domestic sheep to cattle in occupied desert bighorn habitat. Determine the susceptibility of desert bighorn to strains of Pasturella hemolytica found in domestic sheep and cattle and determine the critical role of livestock grazing in reaching desert sheep population goals.
- Minimize disturbances to bighorns during breeding, August-October 31; lambing, March-June; near permanent water and other crucial use areas as they are delineated.
- Develop grazing management plans to enhance desert bighorn sheep habitat with consideration given to the forage requirements by season of use and key plant species components (grass, forb, and shrub).
- Allotment management plans will consider the forage requirements for desert bighorns within the population levels determined in the resource management plan decision documents and within potential carrying capacities.
- Develop desert bighorn watering structures away from areas occupied by livestock to reduce potential for spreading contagious diseases.
- Fence construction should be minimized and meet specifications of three strand fence spacings of 20, 35, and 39 inches above the ground with a smooth bottom wire in desert bighorn habitat areas.
- Mineral exploration and development should be regulated to minimize disturbances to bighorns.
- Recreation activities should be regulated in crucial habitat areas where they pose a threat to bighorns. Develop a plan to enhance desert sheep viewing opportunities in nonsensitive habitat areas in cooperation with the Colorado Division of Wildlife Watchable Wildlife Program.

CONCURRENCE

Grand Junction District Manager, BLM — 6-15-89 Date

Montrose District Manager, BLM — 5/6/89 Date

Northwest Regional Manager, CDOW — 6-14-89 Date

Southwest Regional Manager, CDOW — 4/29/89 Date

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INTRODUCTION

The Colorado desert bighorn sheep management plan is a step down version of the Bureau's desert bighorn sheep management plan (1987) and is written to provide guidance for the recovery of desert bighorn sheep on public lands in Southwest Colorado. This plan is being prepared and implemented in cooperation with the Colorado Division of Wildlife. It provides guidance and sets priorities for future introductions, habitat improvement projects, baseline studies and inventories, and monitoring schedules.

The purpose of the statewide management plan is to provide the next planning tier to completed Resource Management Plans (RMP's) by consolidating all management decisions related to the management of desert bighorn sheep in the Grand Junction and Montrose Districts. This management plan will not override or supersede management decisions already approved in completed RMP's, rather, it compliments and facilitates a coordinated and cost-effective program of restoring the desert bighorn sheep to their historic ranges on public lands in Colorado.

BACKGROUND: HISTORIC DISTRIBUTION IN COLORADO

The effort to establish desert bighorn sheep into probable historic desert bighorn range was initiated in 1974 and culminated with a cooperative agreement in 1977 among the Colorado Division of Wildlife, U.S. National Park Service, and Bureau of Land Management. That agreement, in cooperation with Arizona and Nevada, initiated a desert bighorn sheep release on BLM public lands in the Devil Canyon area adjacent to the Colorado National Monument. A total of 36 bighorns were released over a three year period (1979-1981) in to an area believed to have been historically occupied by desert bighorn sheep. The transplants consisted of bighorns (Ovis canadensis mexicana) from the Kofa Game Range in Arizona and bighorns (O.c.nelsoni) from Lake Mead National Recreation Area in Nevada and Arizona.

Authors Buechner (1960) and Monson (1980) believed desert bighorns once extended from Utah into Colorado along the Colorado River and Hall and Kelson (1959) show the historic range of Ovis canadensis to extend into western Colorado. Skeletal remains of bighorn were found near the Colorado National Monument (Dalton and Spillett, 1971) and bone fragments were found in adjacent Montrose County (Kasper, 1977). Other historical data that indicates presence of bighorns include skulls, Indian petroglyphs and pictographs around the Colorado National Monument and within the Dominguez and Gunnison Canyons.

The historical occurrence of desert bighorn's in extreme Southwestern Colorado is subject to debate. A study by Bauer (1977) provided sufficient documentation that a release of desert bighorns could be sustained in the sandstone rim canyon areas along the Colorado River. Following the first release in 1979, a two-year graduate study was funded by the Colorado National Monument with the Colorado State University. Another graduate study was contracted to Colorado State University in 1981 to collect additional movement and distribution data on the released bighorns. Both studies provided information that ultimately led to the decision to continue with the desert bighorn sheep restoration effort in other suitable and historic habitats.

The historic range of desert bighorn sheep is depicted in the extreme southwest portion of the State (Appendix A-1) on area of approximately 1,500 square miles. Habitat on BLM administered public lands is estimated at 400,000 acres along the major drainage and canyons of the Dolores river, along a small portion of the Gunnison river, and along the Colorado river near the Utah and Colorado border.

The habitat is characterized by topographic diversity of vertical cliffs and sandstone rims, to rolling to flat desert valley bottoms dissected by gulches. Vegetation ranges from pinon-juniper and desert shrubs in the canyons and mesas, with aspen and ponderosa pine in the upper drainage, and grasslands intermixed with oak brush, sagebrush, and juniper woodlands at intermediate elevations.

CURRENT STATUS

From 1979 through 1987, a total of 122 desert bighorn sheep were released in Colorado. The current population (fall, 1987) estimated is 210 animals. This population occupies approximately 100,000 acres of BLM administered public lands.

BLM DISTRICT/ UNITS	OCCUPIED BLM HABITAT	POPULATION ESTIMATE
GRAND JUNCTION/		
WEST GUNNISON	50,000 ac.	65
DEVILS-MEE CANYON	25,000 ac.	85
PALISADES/SEWEMUP	0	0
MONTROSE/		
UPPER DOLORES RIVER	25,000 ac.	60
LOWER DOLORES RIVER	0	0

STATEWIDE MANAGEMENT PLAN

The statewide plan encompasses five habitat units on public lands referred to as West Gunnison, Devils-Mee Canyon, Palisades/Sewemup, Lower Dolores River, and Upper Dolores River. The overall goal is to facilitate the restoration of desert bighorn sheep into historic range of southwest Colorado in cooperation with the Colorado Division of Wildlife. This goal has two major objectives: the first is to establish a herd nucleus in each of the habitat units through releases of sufficient numbers of bighorns to establish a productive herd that will disperse into adjacent suitable habitat. The second objective is to maintain and enhance habitat conditions capable of producing surplus animals for additional releases into new unoccupied suitable areas and to allow for the consumptive use of mature sheep.

Following are the population and habitat management objectives established for each habitat unit along with the current land use management decisions, monitoring techniques, planned actions, and coordination guidelines with other resource programs on the public lands.

W E S T G U N N I S O N H A B I T A T U N I T

Total potential habitat:	190,000 ac. (95% BLM)
Occupied habitat:	50,000 ac.
Unoccupied potential habitat:	140,000 ac.

Population estimate: 65 (as of 1987)
Subspecies: Ovis canadensis nelsoni
Releases:

- August, 1983 - Total of 10 (3 males, 7 females), Big Dominguez Creek.
- July, 1985 - Total of 13 (5 males, 8 females), Dry Fork Dominguez Creek.
- August, 1985 - Total of 8 (8 females), Dry Fork Big Dominguez C r e e k .

POPULATION OBJECTIVES:

- The long term objective is to manage this unit to support an estimated population of 500 bighorns as determined by population modeling.

- Short term objective is to attain a herd of 150 bighorns by 1995. This assumes a 10% annual increase from the population estimate of 65 animals as of 1987.

Planned actions for population objectives are to conduct helicopter surveys to determine lamb/ewe ratio; conduct aerial surveys to identify rutting areas and sex ratios; document distribution of radio-collared animals; and conduct mid-winter surveys and population estimates.

HABITAT MANAGEMENT OBJECTIVES:

1. Manage the habitat unit for a forage composition of 45% perennial grass, 35% forb, and 20% shrub forage base, with the key area located in the bottom of Big Dominguez Creek and Beaver Mesa. On the north bench area above Big Dominquez Creek and Wildhorse Draw, manage for a forage composition of 30% perennial grass, 10% forb, and 60% shrub in the forage base. Refer to the Desert Bighorn Inventory Part 1: Dominquez, Summer 1988, (Joni Armstrong).

2. Manage for minimal disturbances in crucial areas such as watering sites, lambing areas, and seasonal concentration areas. Specific periods are lambing during March-June, breeding during mid August-October, and winter concentration during December-April.

3. Encourage bighorn dispersal and occupancy of suitable areas outside of designated wilderness study areas (WSA's) through vegetation manipulations and transplanting.

Planned actions to accomplish habitat objective number 1:
   a. Establish initial study transects and read every five years.
   b. Utilization studies to be read as scheduled in allotment management plan in bighorn sheep key areas.

Planned actions to accomplish habitat objective number 2:
   a. Monitor population production, age and sex ratios, and distribution. Identify seasonal use areas and biological concentration areas.
   b. Seasonal restrictions will be applied to all surface conflicts.
   c. Design trails and direct recreational activities away from crucial areas.

Planned actions to accomplish habitat objective number 3:

a. Identify potential release areas and capture sites. The lower end of Dominguez Creek has potential to be used as a future trapping site. Transportation access across Gunnison River should be maintained for this purpose.
b. Create corridors between high use bighorn areas to encourage interchange of bighorns.
c. Covert P-J areas to grass/forb vegetative complexes outside of WSAs. Pinon-juniper habitat type currently occupies more than 30% of the total vegetative composition.
d. Install water catchments in unoccupied areas that have suitable habitat attributes of forage and escape cover.
e. Complete required environmental assessment and habitat suitability analysis for bighorn release in the Winter Mesa/Camelback area.

EXISTING MANAGEMENT CONSTRAINTS:

The WSA designation and Interim Management Policy restricts opportunities for vegetation conversions and treatments to enhance the forage base for bighorn sheep and to enhance travel routes through P-J stands and restricts the use of vehicles for capture and release of bighorns.

A no surface disturbance stipulation is in effect from December 1 through May 1 in the Dominguez Canyon portion of the habitat unit. Off-road vehicle closure for the Cactus Park area issued to control high recreational use activities.

Both fixed-wing and helicopter aircraft will continue to be used for monitoring and management of bighorn sheep under Interim Wilderness Management Guidelines. The Wilderness Management Policy (1981) provides for use of motorized equipment in section III K. Under wilderness designation, aircraft and mechanical transport could still be allowed for monitoring, construction or maintenance of wildlife facilities, and transplant or removal of desert bighorn sheep.

EVALUATION/MONITORING:

OBJECTIVES	ATTRIBUTES
1. Bighorn sheep population	--ram/ewe numbers and ratios --lamb/ewe ratios --total herd numbers --bighorn use days (pellet group counts)

2.	Crucial use areas	--high use areas (concentrations) --lambing grounds --perennial water sources with high use --breeding areas --constricted travel lanes
3.	Forage composition/trend	--utilization levels --vegetation composition --% canopy cover of shrubs over 5'
4.	Herd dispersal	--occupied verses potential habitat
5.	Project evaluation	--determine effectiveness

METHODOLOGY/TIME FRAMES:

Population monitoring will consist of not less than two helicopter flights per year. After initial data is gathered for the first three years, annual flights reduced to every other year. Ground observations will be conducted as needed. Aerial flights are depended on available funds and manpower.

Monitoring of crucial areas will be simultaneously done during aerial flights supplemented with specific on-the-ground mapping and observations.

Forage trend studies will be read every 5 years with photo points established as needed.

COORDINATION GUIDELINES WITH OTHER RESOURCE PROGRAMS:

Coordinate the livestock grazing use to enhance bighorn sheep ranges. Grazing use should enhance perennial grass species and be avoided during winter on bighorn concentration areas.

Limit recreational use to time periods with minimum impact to bighorns.

Design utility corridors around bighorn crucial areas in areas administered by the Grand Junction District.

Maintain the class of livestock use to cattle operations.

Bureau funded livestock waters will be available to bighorn sheep for year around use. New livestock waters will be stipulated with provisions for providing year-round water of bighorns when necessary with the permittee.

LAND USE DECISION DOCUMENTATION:

This habitat unit is covered by Resource Management Plans administered by the Grand Junction District and Montrose District.

The Grand Junction Resource Area Resource Management Plan and Record of Decision, January 1987, provides for the protection of bighorn sheep habitat by prohibiting disturbing surface activities on 6,200 acres by special stipulations and 24,780 acres by wilderness or recreation (p. 2-14 & 2-15). It also provides for improved habitat management for bighorn sheep on 131,565 acres in the Bang's-Dominguez area.

The Uncompahgre Basin Resource Area draft Resource Management Plan, June 1987, preferred alternative provides for bighorn sheep transplants into the camelback/Roubideau Creek area if the sheep would not conflict with current and future livestock grazing forage allocations (page 3-32).

See location map in Appendix A-2.

D E V I L S - M E E C A N Y O N H A B I T A T U N I T

Total potential habitat:	95,000 ac. (90% BLM)
Occupied habitat:	25,000 ac.
Unoccupied Potential habitat:	70,000 ac.

Population estimate: 85 (as of 1987)
Subspecies: Ovis canadensis mexicana & O.c.nelsoni
Releases:

- November, 1979 - Total of 11 (3 males,8 females) at mouth of Devils Canyon (O.c.mexicana).
- June, 1980 - Total of 16 (7 males, 9 females) at enclosure in Colo. National Monument (O.c.nelsoni).
- November, 1981 - Total of 9 (9 females), mouth of Devils Canyon (O.c.nelsoni).

POPULATION OBJECTIVES:

- The long term objective is to manage this habitat unit to support an estimated population of 400 bighorns.
- The short term objective is to attain a herd of 170 bighorns by 1995. This assumes a 10% annual increase from the existing population estimate 85 animals as of 1987.

HABITAT MANAGEMENT OBJECTIVES:

1. Manage the habitat for a forage composition of 50% perennial grass, 20% forb, and 30% shrub in key area located in Devils Canyon, on benches between Devils and Mee, and on mesas west of Mee Canyon. Refer to Desert Bighorn Sheep Inventory Part II: Black Ridge, Summer, 1988, (Joni Armstrong).

2. Manage for minimal disturbance in crucial areas, e.g. lambing, rutting, and other seasonal concentration areas.

3. Promote the expansion of occupied sheep habitat westward to the Utah and Colorado border.

4. Increase visual distances in the pinon-juniper and shrub type.

Planned actions to accomplish habitat objective number 1:
   a. Establish initial study transects and read every five years on the three identified areas.
   b. Monitor livestock grazing through utilization studies in allotment management plans in key areas.

Planned actions to accomplish habitat objective number 2:
   a. Identify seasonal use areas and biological concentration areas.
   b. Monitor herd distribution on a seasonal basis.

Planned actions to accomplish habitat objective number 3:
   a. Encourage movements out of Mee Canyon and Knowles Canyon and movement between all canyons by removal of rim barriers with minimal disturbance.
   b. Remove abandoned fences and modify wire spacing of existing fences to conform to guidelines.

Planned action to accomplish habitat objective number 4:
   a. Delineate areas for limited fire suppression management zones to enhance travel corridors.

EXISTING MANAGEMENT CONSTRAINTS:

The WSA designation and interim management guidelines prohibits all potential opportunities for vegetation conversions projects.

Mining activity is occurring in the general area with some potential surface disturbances and access. Oil and gas activity is limited.

The habitat unit has a fire management prescription for limited suppression management.

Both fixed-wing and helicopter aircraft will continue to be used for monitoring and management of bighorn sheep under Interim Wilderness Management Guidelines. The Wilderness Management Policy (1981) provides for future use of motorized equipment in Section III K. Under wilderness designation, aircraft and mechanical transport could still be allowed for monitoring, construction or maintenance of wildlife facilities, and transplant or removal of desert bighorn sheep.

The Blackridge-Colorado River road between Rattlesnake and Mee Canyons will remain available for the administrative use in managing the bighorn population.

EVALUATION/MONITORING:

OBJECTIVES	ATTRIBUTES
1. Bighorn sheep population	--ram/ewe numbers and ratios --total herd numbers --lamb/ewe ratios --bighorn use days (pellet group counts)
2. Crucial use areas	--lambing grounds --seasonal use areas --perennial water sources with high use --breeding areas --constricted travel lanes
3. Artificial water units	--documented use
4. Forage composition/trend	--vegetation composition --vegetation density --utilization levels of wildlife and livestock --% canopy cover of shrubs over 5 ft.

METHODOLOGY/TIME FRAMES:

Population monitoring will consist of two helicopter flights per year. After initial data is gathered for the first three years, flights will be reduced to every other year. Ground observations will be conducted as needed. and depended on available funds and manpower. While radio transmitters remain functional, monthly fixed-wing flights will be conducted to document distribution and locate concentration areas.

Monitoring of crucial areas will be simultaneously done during aerial observations supplemented with specific on -the-ground mapping and documentation.

Selected watering units will be monitored at two and five years after installation to confirm usage by bighorns.

Forage trend studies will be read every five years with photo points on all study plots.

Track counts will be used to evaluate movement into and out of rimmed canyons and developed passes.

COORDINATION GUIDELINES WITH OTHER RESOURCE PROGRAMS:

Coordinate the livestock grazing use to enhance desert bighorn sheep ranges. Maintain the class of livestock to cattle only. Grazing systems should enhance perennial grasses and avoid use on bighorn sheep winter concentration areas.

Plan recreation facilities to reduce human encounters with desert bighorn sheep during crucial seasons.

LAND USE DECISION DOCUMENTATION:

The Grand Junction Resource Area Resource Management Plan and Record of Decision, January 1987, provides for the protection of bighorn sheep habitat by prohibiting disturbing surface activities on 6,200 acres by special stipulations and 24,780 acres by wilderness or recreation (page 2-14 & 2-15).

The BLM Blackridge Wilderness Study Area is located within the Devils-Mee Canyon
Habitat Unit and is under study by the National Park Service. The National Park Service study is to determine the WSA resource values for potential expansion
of the Colorado National Monument.

See location map in Appendix A-3.

PALISADES/SEWEMUP HABITAT UNIT

Total potential habitat:	28,100 ac. (95% BLM)
Occupied habitat:	0
Unoccupied potential habitat:	28,100 ac.

Current population estimate: 0 (as of 1987)
Subspecies:
Releases: NONE

HABITAT MANAGEMENT OBJECTIVES:

1. The habitat objective for this habitat unit is to conduct a habitat suitability analysis before releases are made. The area is adjacent to potential desert bighorn habitat in Utah. Specific management efforts will be coordinated with Utah.

Planned actions to accomplish habitat objective number 1:

a. The initial habitat suitability study will document the following components:
   (1) Density and percent over-story cover
   (2) Escape terrain and physical features
   (3) Permanent water distribution
   (4) Available forage and composition
   (5) Livestock use pattern and utilization levels
   (6) Determine potential conflict areas with deer and elk
   (7) Determine sensitive habitat areas to recreation use

LAND USE DECISION DOCUMENTATION:

The Grand Junction Resource Area Resource Management Plan and Record of Decision, January 1987, provides for the active habitat management of bighorn sheep on 131,565 acres. The Palisade/Sewemup area was not address in the resource management plan. The reintroduction of sheep would be compatible with planned uses subsequent to public notices and amendment of the existing resource management plan.

See location map in Appendix A-4.

LOWER DOLORES RIVER HABITAT UNIT

Total potential habitat:	69,000 ac. (99% BLM)
Occupied habitat:	0
Unoccupied potential habitat:	69,000 ac.

Population estimate: 0 (as of 1987)
Subspecies:
Releases: NONE

The Lower Dolores River habitat area is being considered as a subunit of the entire Dolores River drainage. The Lower Dolores area is administered by the Uncompahgre Basin Resource Area and San Juan Resource Area, Montrose District.

HABITAT MANAGEMENT OBJECTIVES:

1. Introduce desert bighorn sheep into the habitat unit and provide for the necessary improvements in existing habitat conditions to accommodate the bighorn sheep.

2. Conduct a habitat suitability analysis study along with describing potential conflicts and existing land use limitations.

Planned action to accomplish habitat objective number 1:
   a. Release desert bighorn sheep within the Dolores River Wilderness Study Area.

Planned action to accomplish habitat objective number 2:
   a. Initiate a cooperative funded study with the Colorado Division of Wildlife and Foundation of North American Wild Sheep (potential contributor) and document the following habitat components:
      (1) Habitat suitability map
      (2) Site potential for vegetation conversion
      (3) Essential habitat features for bighorns
      (4) Identifying habitat conflicts
      (5) Develop habitat management guidelines for desert sheep

EXISTING MANAGEMENT CONSTRAINTS:

The WSA designation and interim management guidelines restrict potential opportunities for vegetation conversions and habitat improvement project work to enhance the forage base and establish travel routes.

The release of desert bighorn sheep is approved in the San Juan/San Miguel RMP which restricts the herd size of bighorn in the Dolores River Canyon to an upper population limit of 300 animals.

LAND USE DECISION DOCUMENTATION:

The San Juan/San Miguel Resource Management Plan decision document, September 1985, provides for the reintroduction of bighorn sheep but does not specifically address bighorn sheep numbers for this segment of the Dolores River Wilderness Study Area.

See location map in Appendix A-5.

U P P E R D O L O R E S R I V E R H A B I T A T A R E A

Total potential habitat:	67,000 ac. (95% BLM)
Occupied habitat:	25,000 ac.
Unoccupied potential habitat:	42,000 ac.

Population estimate: 60 (as of 1987)
Subspecies: Ovis canadensis nelsoni
Releases:
- March, 1986 - Total of 35, south of Slick Rock.
- July, 1987 - Total of 20, south of Slick Rock.
- July, 1989 - An additional release proposed.

POPULATION OBJECTIVES:

- The long term objective is to manage this habitat unit to support an estimated population of 200 bighorns as determined by population modeling.
- The short term objective is to establish a reproductive population of 75 sheep by 1989 (through supplemental releases) and a herd of 140 by 1995. This assumes a 10% annual increase from the projected population estimate of 75 as of 1989.

HABITAT MANAGEMENT OBJECTIVES:

1. Protect potential suitable desert bighorn sheep habitat from outside intrusions, and control recreation activities along the Dolores River where there is a potential threat to desert sheep activities.
2. Intensively map and describe the vegetation in the Dolores River Canyon, and determine habitat suitability and forage availability for desert bighorn sheep.

3. Supplement existing desert bighorns in the Dolores River Canyon until a viable herd of 125 animals is obtain along the entire Canyon.

4. Protect bighorn crucial areas as identified as lambing areas, breeding areas, and other seasonal concentration areas.

Planned actions to accomplish habitat objective number 1:
   a. Regulate mineral development and exploration to minimize habitat disturbance.
   b. Avoid undue intrusions in occupied sheep habitat during lambing period (April-May), breeding season (August-October), and wintering (December-February).

Planned action to accomplish habitat objective number 2:
   a. Implement a two year cooperative study with Colorado Division of Wildlife to identify habitat preference use areas, distribution patterns, human impacts or potential conflicts, reproductive cycle, and other data relative to the management of bighorn sheep.

Planned action to accomplish habitat objective number 3:
   a. Identify potential release areas and monitor population status.

Planned action to accomplish habitat objective number 4:
   a. Identify important seasonal use areas.

EXISTING MANAGEMENT CONSTRAINTS:

The existing RMP decision limits the total bighorn sheep population for the Dolores River Canyon to 300 animals.

EVALUATION/MONITORING:

OBJECTIVES	ATTRIBUTES
1. Bighorn populations	--rams/ewes numbers --total herd numbers --lamb/ewe ratios --bighorn use days(pellet group counts)
2. Crucial use areas	--lambing grounds --seasonal use areas
3. Forage composition/trend	--vegetation composition --livestock utilization levels --% canopy cover of shrubs over 5 ft.

METHODOLOGY/TIME FRAME:

Monitoring of crucial use areas will be simultaneously done during aerial reconnaissance, and will be supplemented with on-the-ground observations.

Forage trend studies will be read every five years with established photo points.

COORDINATION GUIDELINES WITH OTHER RESOURCE PROGRAMS:

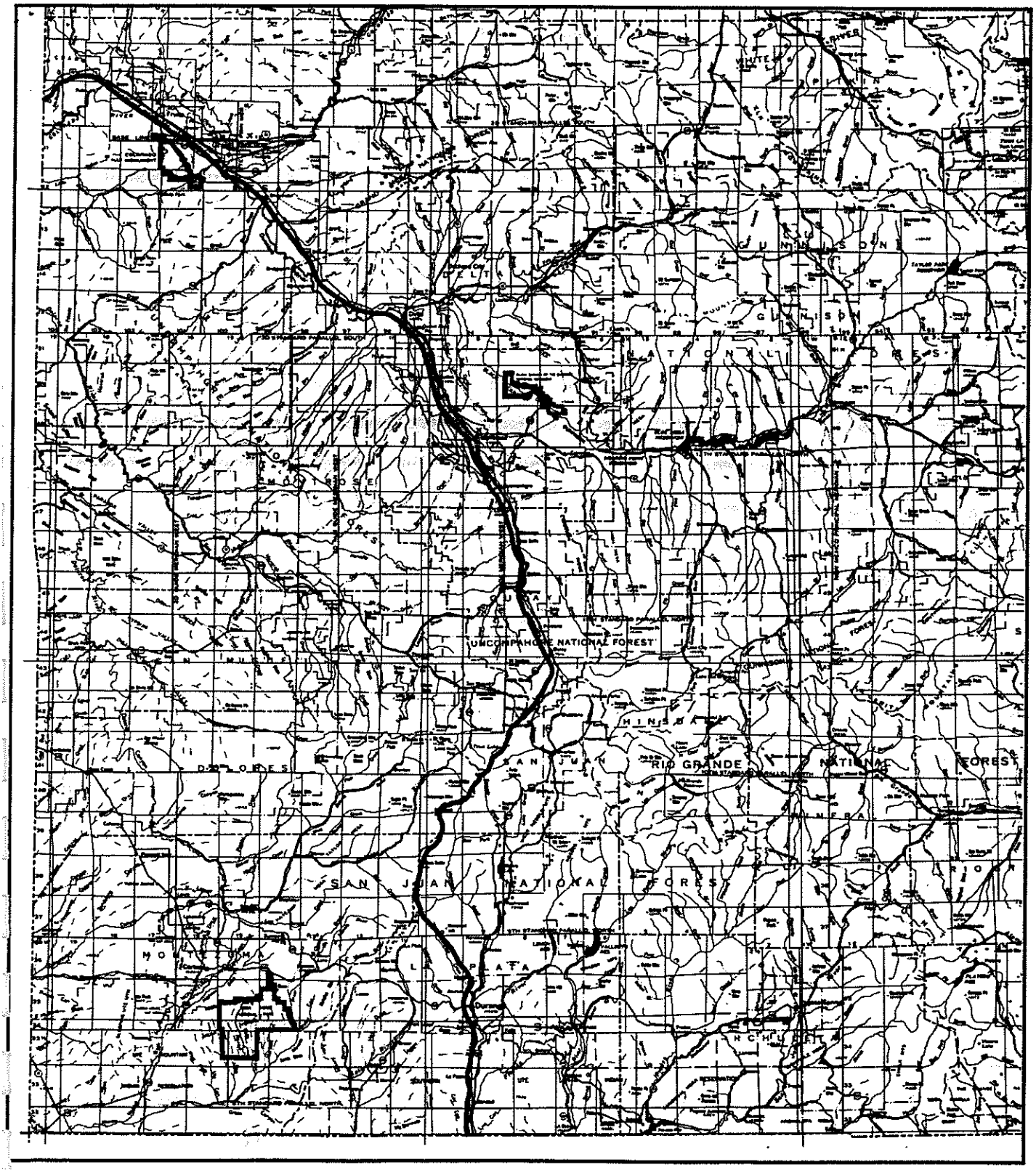
Coordinate the livestock grazing use to enhance the quantity and quality of forage for desert bighorn sheep. Limit the class of livestock to cattle only on areas suitable for bighorn sheep.

The Dolores River Recreation management plan (to be completed) would enhance and facilitate the management of desert bighorn sheep. Specific bighorn sheep essential areas should be protect from recreational facilities, and human intrusions would be limited in some areas. Development and maintenance of the Mountain Sheep Point Recreation site (immediately downstream from the Dove Creek pump station) would be allowed with proper consideration given to the bighorn sheep. This facility is described in detail in the Dolores Project Downstream Site Selection and Easement Report (February, 1981).

LAND USE DECISION DOCUMENTATION:

The San Juan/San Miguel Resource Management Plan decision document, September 1985, provides for the introduction of desert bighorn sheep not to exceed a total of 300 animals for the Dolores River Canyon (pages 12).

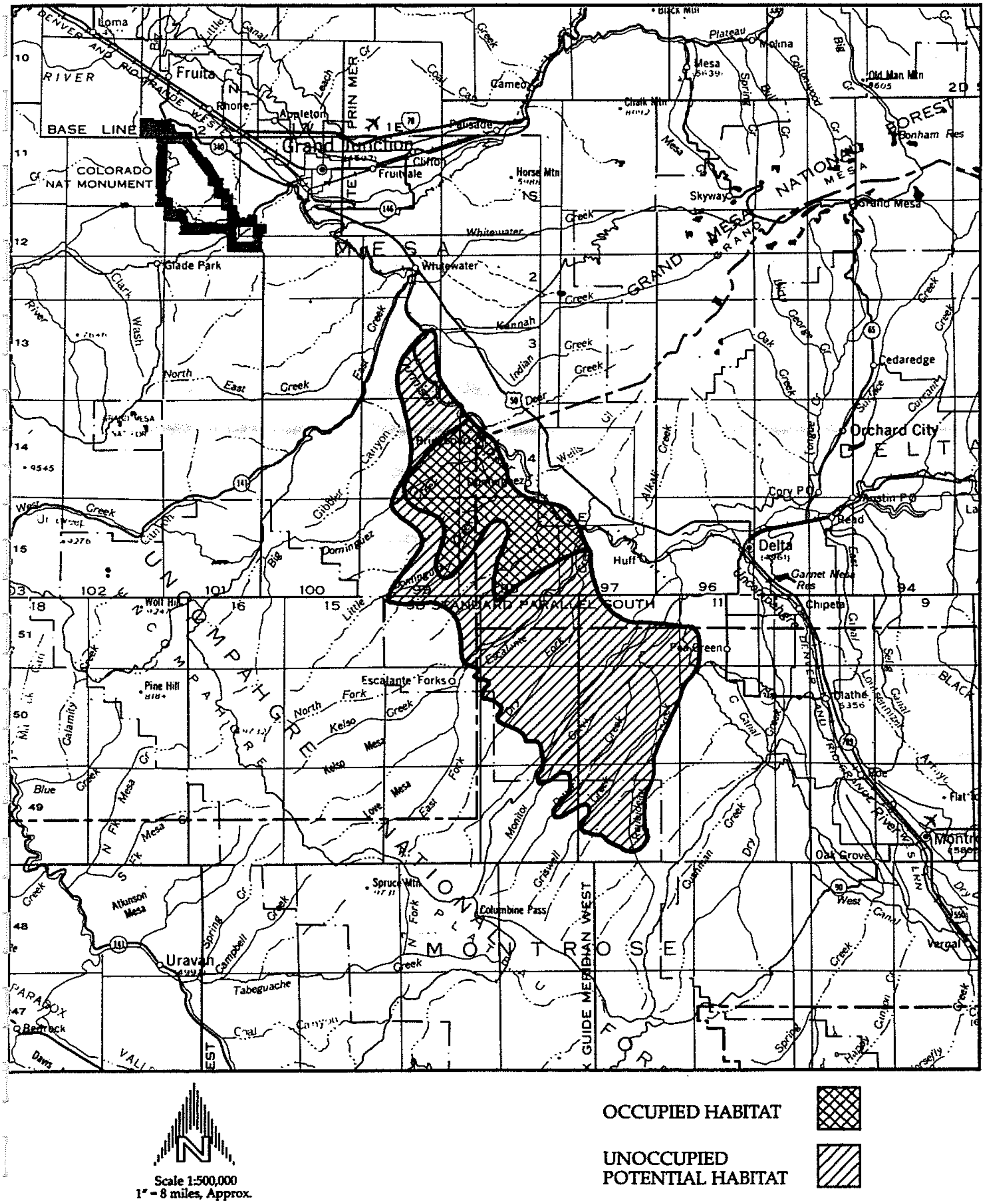
See location map in Appendix A-6.



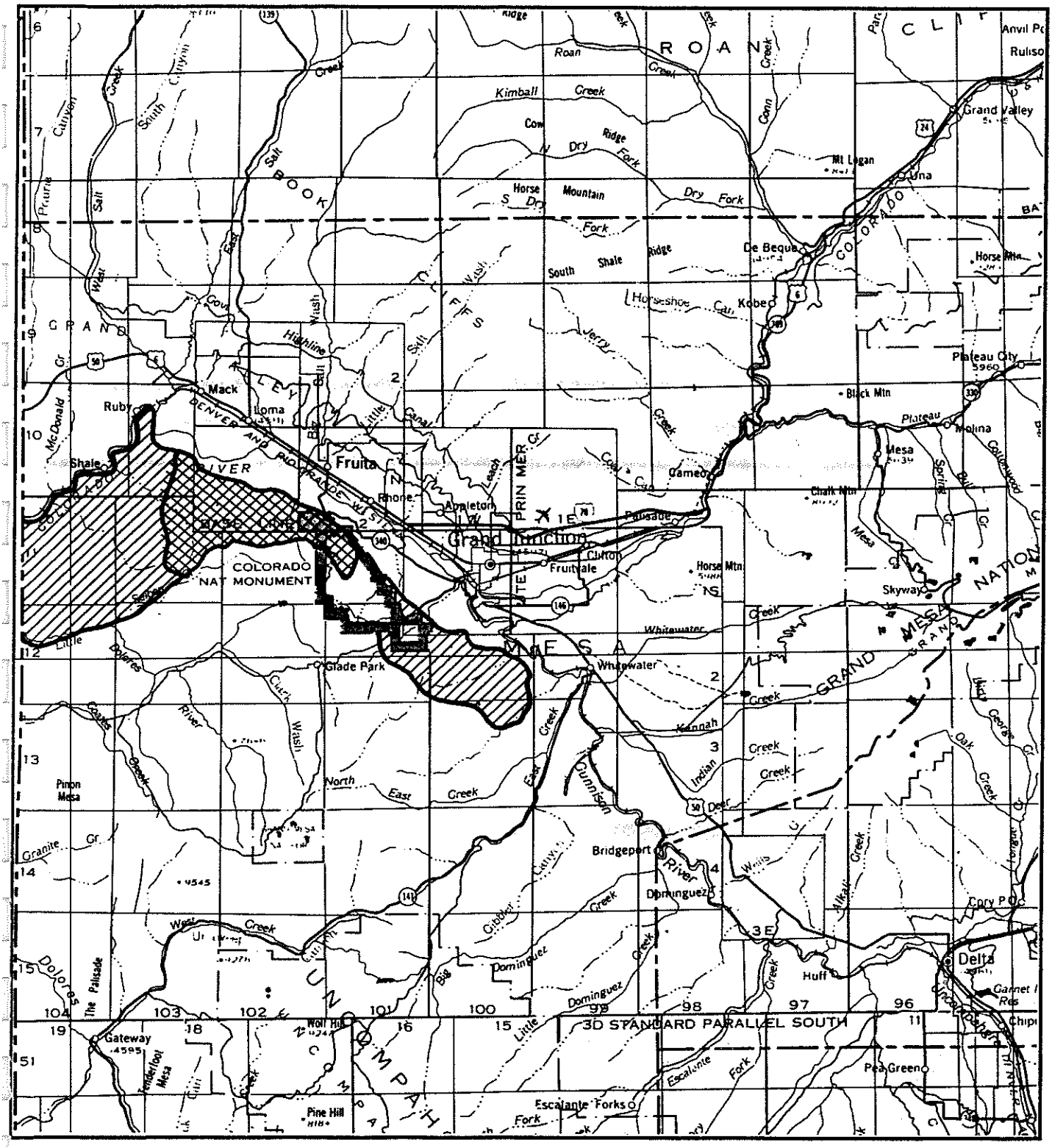
SOUTHWEST COLORADO

Scale 1:1,250,000
1" = 20 miles, Approx.

HISTORIC RANGE OF THE DESERT BIGHORN SHEEP



WEST GUNNISON HABITAT UNIT



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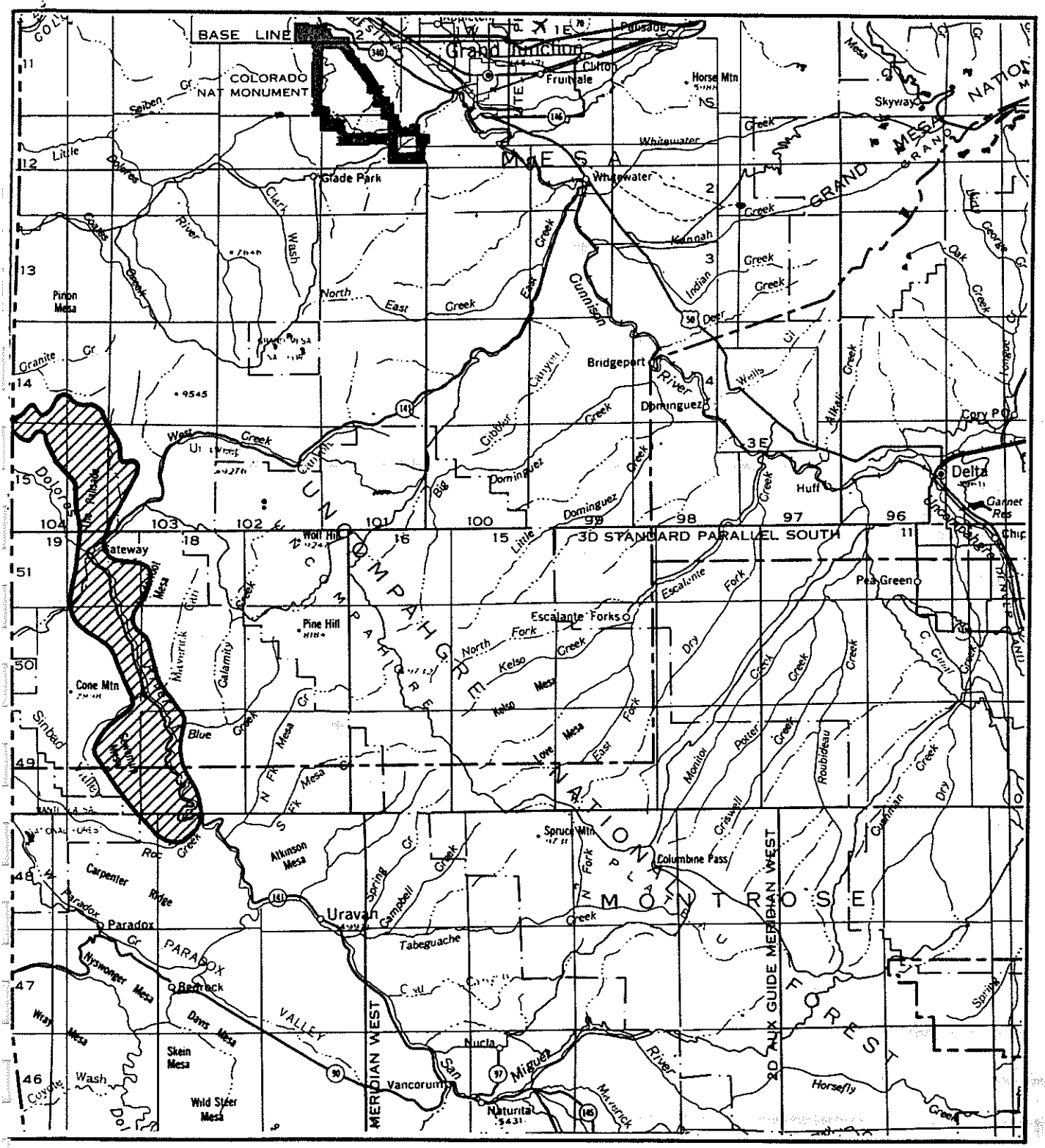
1" = 8 miles, Approx.

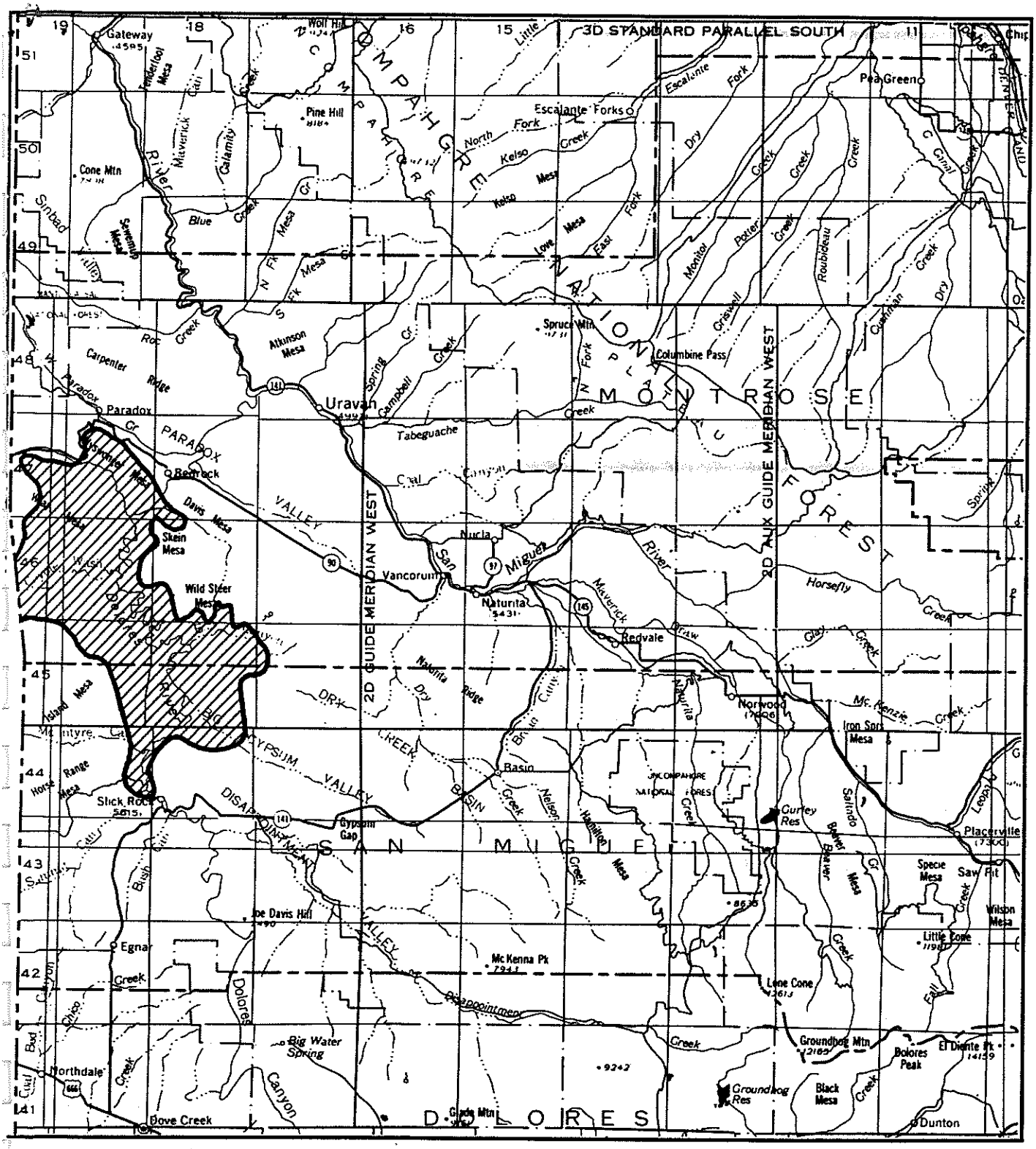
OCCUPIED HABITAT

UNOCCUPIED
POTENTIAL HABITAT

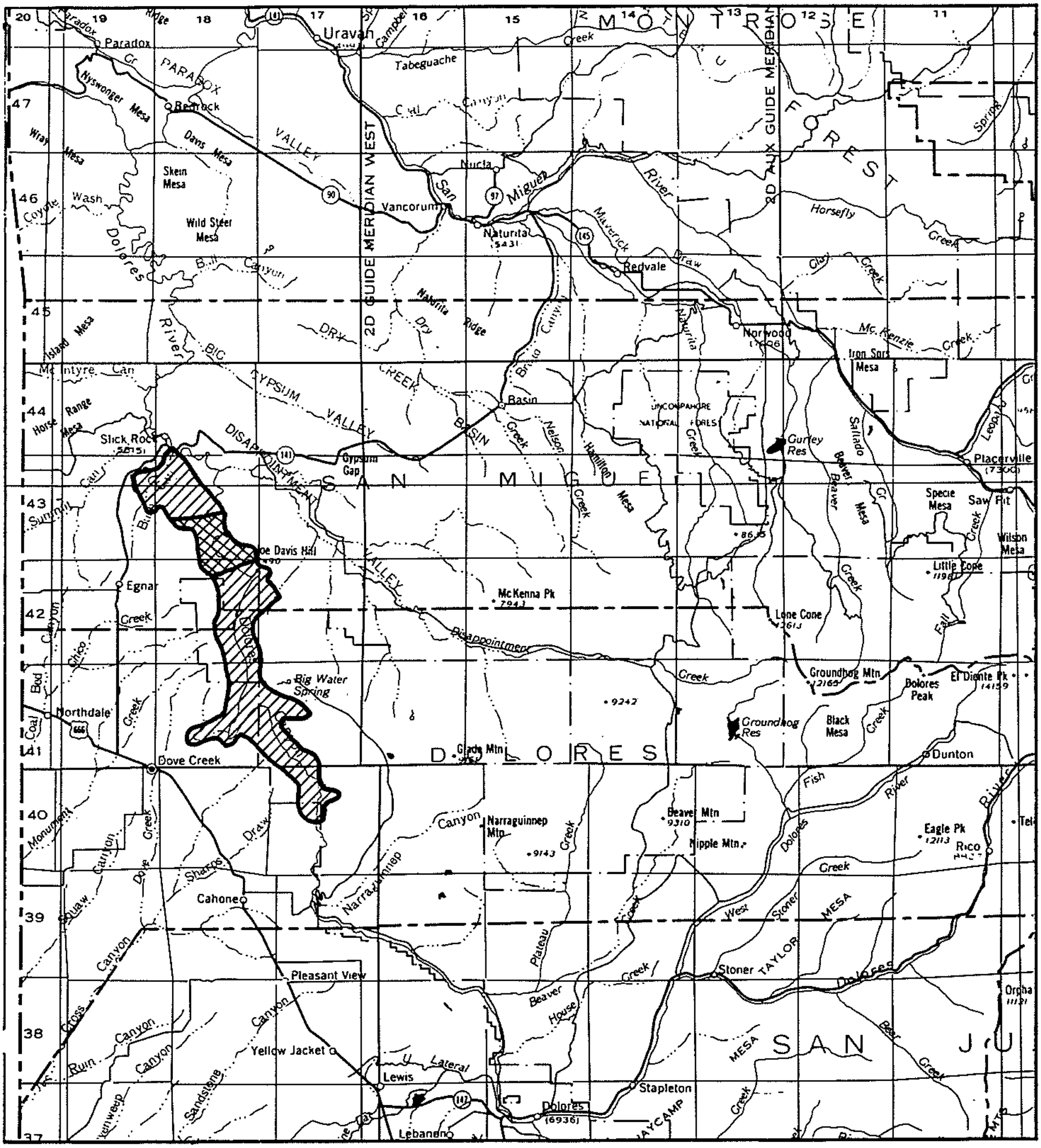
DEVILS - MEE CANYON HABITAT UNIT



PALISADES/SEWEMUP HABITAT UNIT



LOWER DOLORES RIVER HABITAT UNIT



![North arrow]

Scale 1:500,000
1" = 8 miles, Approx.

OCCUPIED HABITAT

UNOCCUPIED POTENTIAL HABITAT

UPPER DOLORES RIVER HABITAT UNIT