

ELKO WILDERNESS TECHNICAL REPORT

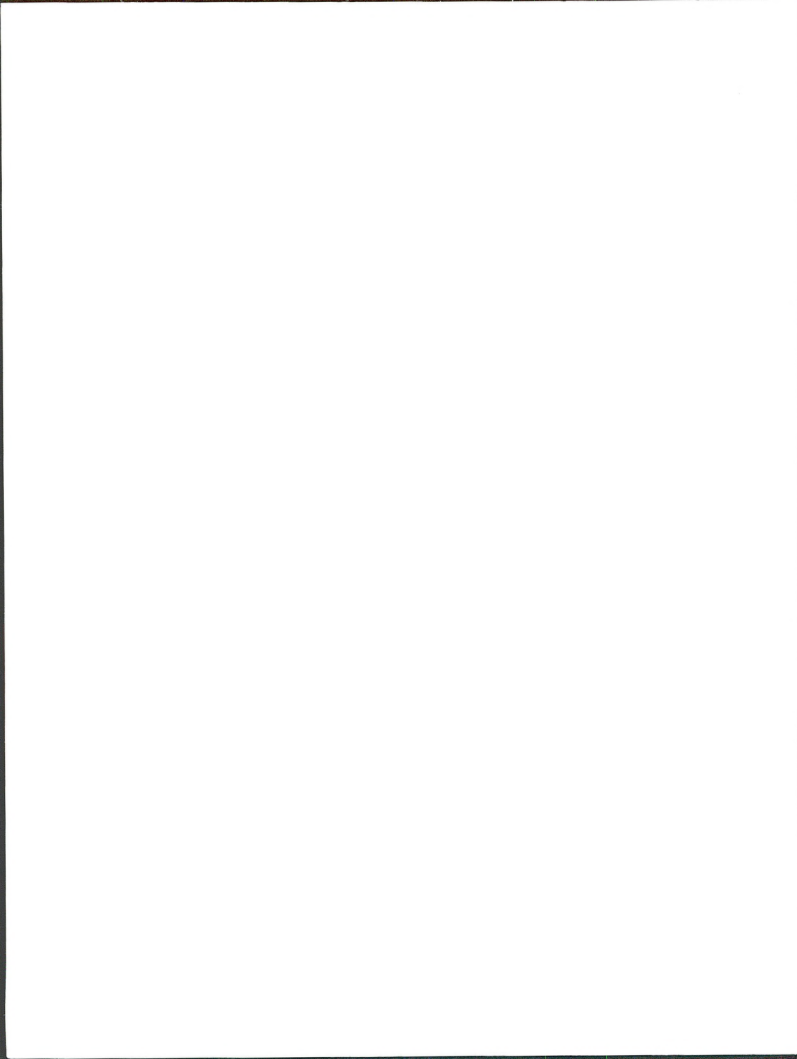
BUREAU OF LAND MANAGEMENT

ELKO DISTRICT

Elko Resource Area

Elko, Nevada

QH
76.5
.N3
E432
1985



#12899799

88005492

54
76.5
.113
E432
1985

ELKO RESOURCE AREA
WILDERNESS TECHNICAL REPORT

MAY 1985

Bureau of Land Management
Elko District Office

Bureau of Land Management
Library
Bldg. 50, Denver Federal Center
Denver, CO 80225

1920
1921
1922
1923
1924
1925
1926
1927
1928
1929
1930
1931
1932
1933
1934
1935
1936
1937
1938
1939
1940
1941
1942
1943
1944
1945
1946
1947
1948
1949
1950
1951
1952
1953
1954
1955
1956
1957
1958
1959
1960
1961
1962
1963
1964
1965
1966
1967
1968
1969
1970
1971
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025

TABLE OF CONTENTS

	<u>PAGE</u>
I. Introduction.....	1
II. Information Applicable to All Four Study Areas.....	2
A. Wilderness Values.....	2
Wilderness Characteristics.....	2
Special Features.....	3
Multiple Resource Benefits.....	4
Diversity in the National Wilderness Preservation System.....	5
B. Manageability.....	6
C. Quality Standards.....	6
Energy and Mineral Resource Values.....	6
Impacts on Other Resources.....	6
Impacts of Nondesignation on Wilderness Values.....	8
Public Comment.....	8
Local Social and Economic Effects.....	8
Consistency with Other Plans.....	14
III. WSA Analysis	
ROUGH HILLS	
A. Wilderness Values.....	16
Wilderness Characteristics.....	16
Special Features.....	19
Multiple Resource Benefits.....	19
Diversity in the National Wilderness Preservation System.....	20
B. Manageability.....	22
C. Quality Standards.....	22
Energy and Mineral Resource Values.....	22
Impacts on Other Resources.....	26
Impacts of Nondesignation on Wilderness Values.....	27
Public Comment.....	29
Local Social and Economic Effects.....	29
Consistency with Other Plans.....	29
LITTLE HUMBOLDT RIVER	
A. Wilderness Values.....	32
Wilderness Characteristics.....	32
Special Features.....	34
Multiple Resource Benefits.....	35
Diversity in the National Wilderness Preservation System.....	36
B. Manageability.....	36

	<u>PAGE</u>	
C.	Quality Standards.....	39
	Energy and Mineral Resource Values.....	39
	Impacts on Other Resources.....	41
	Impacts of Nondesignation on Wilderness Values.....	43
	Public Comment.....	45
	Local Social and Economic Effects.....	45
	Consistency with Other Plans.....	46
 CEDAR RIDGE		
A.	Wilderness Values.....	52
	Wilderness Characteristics.....	52
	Special Features.....	54
	Multiple Resource Benefits.....	54
	Diversity in the National Wilderness Preservation System.....	55
B.	Manageability.....	57
C.	Quality Standards.....	57
	Energy and Mineral Resource Values.....	57
	Impacts on Other Resources.....	60
	Impacts of Nondesignation on Wilderness Values.....	62
	Public Comment.....	63
	Local Social and Economic Effects.....	63
	Consistency with Other Plans.....	63
 RED SPRING		
A.	Wilderness Values.....	67
	Wilderness Characteristics.....	67
	Special Features.....	68
	Multiple Resource Benefits.....	69
	Diversity in the National Wilderness Preservation System.....	70
B.	Manageability.....	70
C.	Quality Standards.....	70
	Energy and Mineral Resource Values.....	70
	Impacts on Other Resources.....	74
	Impacts of Nondesignation on Wilderness Values.....	75
	Public Comment.....	77
	Local Social and Economic Effects.....	77
	Consistency with Other Plans.....	77
IV.	References.....	81
V.	Appendix.....	83

LIST OF TABLES

<u>Table No.</u>	<u>Description</u>	<u>Page</u>
1	Acres of Ecosystem by WSA.....	5
2	Suitable/Nonsuitable by Alternative (Rough Hills).....	16
3	Intermountain Sagebrush/Great Basin Sagebrush Ecosystem....	21
4	Proximity to Boise Population Center.....	21
5	Rough Hills Mineral Potential Classification.....	24
6	Suitable/Nonsuitable by Alternative (Little Humboldt River). 32	
7	Intermountain Sagebrush/Sagebrush Steppe Ecosystem.....	37
8	Proximity to Reno Population Center.....	37
9	Little Humboldt River Mineral Potential Classification.....	40
10	Suitable/Nonsuitable by Alternative (Cedar Ridge).....	52
11	Intermountain Sagebrush/Juniper-Pinyon Woodland Ecosystem... 56	
12	Proximity to Salt Lake City Population Center.....	56
13	Cedar Ridge Mineral Potential Classification.....	58
14	Suitable/Nonsuitable by Alternative (Red Spring).....	67
15	Red Spring Mineral Potential Classification.....	71

LIST OF MAPS

<u>Map No.</u>	<u>Description</u> (Individual WSA maps are located at the end of each WSA discussion)	<u>Page</u>
1	Elko Resource Area Location Map.....	15
2	Rough Hills WSA (NV-010-151) Existing Situation Map.....	30
3	Wildlife Map.....	31
4	Little Humboldt River WSA (NV-010-132) Existing Situation.....	47
5	Wild Horse Range.....	48

<u>Map No.</u>	<u>Description</u>	<u>Page</u>
6	Wildlife & Fisheries Map.....	49
7	Minerals.....	50
8	Suitable Recommendations.....	51
9	Cedar Ridge WSA (NV-010-088) Existing Situation.....	64
10	Minerals.....	65
11	Woodland.....	66
12	Red Spring WSA (NV-010-091) Existing Situation.....	78
13	Minerals.....	79
14	Woodland.....	80

I. Introduction

The Federal Land Policy and Management Act of 1976 (FLPMA) requires the Secretary of the Interior to review areas of the public lands determined to have wilderness characteristics, and to report to the President his recommendations as to the suitability or unsuitability of each such area for preservation as wilderness.

The first phase of this process involved the inventory of public lands, and has been completed. The second phase of the process involves the study of these identified lands.

This wilderness technical report is the first step in the study process which evaluates the areas under the Wilderness Study Policy through the multiple use planning process. This will be followed by the Elko Wilderness Study Report and the Elko Wilderness Environmental Impact Statement.

The final phase, following these studies, will be recommendations through the Secretary of the Interior to the President as to which areas are suitable or unsuitable for designation as wilderness. The President will report these to the Congress.

The Elko Resource Area Wilderness Technical Report (a supplement to the Elko Resource Management Plan (RMP)) addresses the Criteria and Quality Standards listed in the Wilderness Study Policy dated February 3, 1982. In addition, this report analyzes impacts by wilderness study area for the five RMP alternatives ranging from all wilderness to no wilderness.

These criteria and quality standards are listed below.

Criteria and Quality Standards

Criterion 1 - Evaluation of Wilderness Values

- a) Mandatory Wilderness Characteristics
- b) Special Features
- c) Multiple Resource Benefits
- d) Diversity in the National Wilderness Preservation System

Criterion 2 - Manageability

QUALITY STANDARDS

- 1) Energy and Mineral Resource Values
- 2) Impact on Other Resources
- 3) Impact of Nondesignation on Wilderness Values
- 4) Public Comment
- 5) Local and Social Economic Effects
- 6) Consistency with Other Plans

The Elko Resource Area contains six Wilderness Study Areas (WSA), four of which will be addressed in this technical report. The other two, Owyhee Canyon and South Fork Owyhee River, were evaluated as part of the Owyhee Canyonlands Wilderness Environmental Impact Statement released in draft form February 1984.

II. Information Applicable to All Four Wilderness Study Areas

In considering the criteria and quality standards, several points are applicable to all four WSAs. To avoid repetition these are discussed in the following section.

Criterion No. 1: Evaluation of Wilderness Values

Component No. 1: Quality of the Area's Mandatory Wilderness Characteristics

A. Naturalness

There are no generally applicable points under this component. This item is addressed separately in each WSA analysis.

B. Outstanding Opportunities for Solitude or Primitive and Unconfined Recreation

1. Solitude

There are no generally applicable points to all four WSAs under this part of the component. Solitude is discussed separately in each WSA analysis.

2. Primitive or Unconfined Recreation

Opportunities for several types of primitive or unconfined recreational activities are present in all four wilderness study areas. These are:

- 1) Hiking/backpacking
- 2) Sightseeing
- 3) Nature study
- 4) Bird Watching
- 5) Photography
- 6) Camping
- 7) Picnicking
- 8) Rockhounding
- 9) Vegetative collecting
- 10) Hunting
 - a. Deer/big game hunting
 - b. Bird hunting
 - c. Small game hunting
 - d. Coyote/varmit hunting
- 11) Trapping
- 12) Rock scrambling/climbing
- 13) Horseback riding/packing

Unless these are especially noteworthy, or unless they contribute to an outstanding diversity of opportunities, no specific mention is made of them individually in the study area discussions which follow.

Component No. 2: Special Features: Quality of the Area's Optional Wilderness Characteristics

The four WSAs lie within the Great Basin, which was occupied as early as 15,000 years ago. These early inhabitants relied on the hunting of now extinct big game species. Large herbivores such as ground sloths, mastodons, mammoths and camels were the principle quarry. Social organization consisted of small, highly mobile bands ranging over a large territory in pursuit of the herds. This is known as the Paleoindian period and is associated with finely made, fluted, lanceolate points.

A change in subsistence pattern developed about 10,000 years ago associated with a change in the climate. The Paleoindian way of life gave way to a broad spectrum hunting and gathering subsistence. As the Pleistocene lakes receded, the climate became warmer and drier and the large herbivores hunted by Paleoindians disappeared. Technologic changes include the increased use of grinding implements for processing wild plants and the atlatl or spear thrower. Twined and coiled basketry is known from this period by its preservation in dry caves. This period is known as the Archaic. Characteristic point styles include Humboldt, Elko, and Pinto.

The next period of cultural change in the Great Basin is called the Fremont. This was a horticulturally based society who supplemented their diet with hunting and gathering. The period dates from AD 500 to AD 1500 and is characterized by subterranean pit houses, masonry storage structures, and triangular bodied anthropomorphic figures. The bow and arrow was probably introduced in the Great Basin during this time period. The Fremont is represented in Utah and adjacent areas of eastern Nevada. There are no known sites of this type as far west as the resource area.

The Fremont period was followed by the Numic period. Numic speaking people migrated into the area after 1100 AD. These people continued to occupy the area until disrupted by contact with explorers and settlers in the early 19th century. The appearance of these people is marked by their characteristic pottery and projectile point styles. The western Shoshone which early travelers met and who still live in the area are the descendants of the numic speakers who migrated to the area 800 years ago.

The first penetration of whites into Nevada occurred in 1826 when Peter Skene Ogden led his men through northern Elko County. This marks the beginning of the historic period.

Even though cultural resources can be found within all four WSAs (see Criteria No. 1, Component No. 2 of specific WSA analysis for a quantification of these resources), they are not known to be of sufficient quantity or quality to substantially enhance the wilderness character of any of the WSAs.

Component No. 3: Multiple Resource Benefits: The Benefits to Other Multiple Resource Values and Uses Which Wilderness Designation of the Area Could Ensure

Wilderness designation would ensure that the naturalness, outstanding opportunities for solitude or primitive and unconfined recreation, special features and other resource values in the WSAs would be maintained or enhanced over time.

In all the WSAs, several other resource benefits would result from wilderness designation. All of these are a consequence of preserving the areas in their natural condition. They are:

- A. Watershed and Water Quality - Development of water sources would be limited by the Wilderness Management Policy dated September 1981, as would developments (other than mining) that would impact the watershed.
- B. Air Quality - All designated wilderness areas would maintain Class II air quality classification (unless changed by the state).
- C. Wildlife -
 - 1. Since animal damage control programs are limited to removing only offending individuals, non-target animals such as the kit fox would not be killed.
 - 2. Preserving the areas in their present natural state results in the preservation of habitats for most species. Seedings that would create monotypical habitat would be disallowed. Maintenance of the natural environment would also aid in keeping disturbances of sight and sound to a minimum.
 - 3. The use of pesticides, herbicides, and other poisons and pollutants will normally be prohibited. This will prevent adverse biological consequences that are often caused by introduction of these substances into the food chain.
- D. Recreation and Visual Resources -
 - 1. Designation would help protect the scenic quality of the areas because of the restrictions placed on development by the Wilderness Management Policy.
 - 2. Designation would help maintain areas in a natural condition thereby preserving opportunities for primitive recreation.
- E. Cultural Resources -

Wilderness designation will offer protection for archaeological resources - both known and potential - by limiting access. Wilderness users could, if properly educated, contribute information by reporting site locations where a survey has not been taken.

F. Forestry -

Since the Wilderness Management Policy prohibits the cutting of trees (except in special circumstances), stands of aspen, curlleaf mountain mahogany, pinyon pine, and Utah juniper would be preserved.

G. Threatened and Endangered Species -

Designation would protect known and yet undiscovered species from impacts associated with resource development and production activities.

Component No. 4: Diversity in the National Wilderness Preservation System

Factor No. 1: Expanding the diversity of natural systems and features, as represented by ecosystems and landforms.

The ecosystems and landforms of the Elko Resource Area WSAs fall into three major categories of the Bailey-Kuchler Ecosystems of the United States classification system (See Table 1).

TABLE 1

Acres of Ecosystem by WSA

<u>WSA</u>	<u>Acres</u>	<u>Ecosystem</u>
NV-010-151 Rough Hills	6,685	Intermountain Sagebrush/Great Basin Sagebrush
NV-010-132 Little Humboldt River	42,213	Intermountain Sagebrush/Sagebrush Steppe
NV-010-088 Cedar Ridge	10,009	Intermountain Sagebrush/Juniper-Pinyon Woodland
NV-010-091 Red Spring	7,847	Intermountain Sagebrush/Juniper-Pinyon Woodland

Factor No. 2. Assessing the opportunities for solitude or primitive recreation within a day's driving time (five hours) of major population centers.

The following listing displays which Standard Metropolitan Statistical Area (SMSA) is within a day's driving time (five hours) of the WSAs.

<u>WSA</u>	<u>SMSA</u>
Rough Hills	Boise, Idaho
Little Humboldt River	Reno, Nevada
Cedar Ridge	Salt Lake City, Utah
Red Spring	Salt Lake City, Utah

Factor No. 3: Balancing the geographic distribution of wilderness areas.

The U.S. Forest Service Jarbidge Wilderness Area is the only designated wilderness area in Nevada. It contains 64,830 acres or .09 percent of the public land in Nevada. Currently there are about eight million acres in Nevada under consideration for wilderness designation that are either administratively endorsed as suitable or slated for further study. This represents approximately 7.5 percent of the federally administered lands in Nevada.

Criterion No. 2: Manageability

There are no generally applicable points to all four WSAs under this criterion. Each individual WSA analysis addresses this criterion specifically.

QUALITY STANDARDS

Standard No. 1: Energy and Minerals Resource Values

A mineral survey will be conducted by the U.S. Geological Survey/Bureau of Mines (USGS/BM) for those portions of WSAs recommended as preliminarily suitable by the Director.

Minerals information utilized in this report include the Elko Area Mineral Resource Inventory compiled by the Nevada Bureau of Mines and Geology; Geology, Energy, and Minerals Assessment prepared by TERRADATA; Geochemical Assesments by the Nevada Bureau of Mines and Geology; field work performed by the district geologist; and various geologic publications. These publications are on file at the Elko District, Bureau of Land Management, P.O. Box 831, Elko, Nevada 89801 (702-738-4071).

Standard No. 2: Impacts on Other Resources

A. Unaffected Resources

Climate - Recommending an area as either suitable or nonsuitable for wilderness designation would not affect the climate of the region.

Air Quality - The air quality rating for the Elko Resource Area, including all of the WSAs, is Class II. This classification would not change due to designation of an area as wilderness, unless the state initiated such action. This would require an additional environmental assessment prior to redesignating an area Class I.

B. Affected Resources

1. Recreation

Adverse impacts on recreational opportunities are few, but include the following:

- A. ORV use will be restricted to existing cherrystem roads. ORV use inside a designated wilderness will be prohibited.

- B. Commercial trapping will be prohibited. Incidental trapping, if it is not the trapper's sole source of livelihood, is permitted.
- C. Hunters who currently rely on vehicle access may find that they will have to walk to certain areas where they previously drove.

2. Range

Ranching interests in wilderness areas will experience some adverse impacts if the operator is required to use horses for activities that had previously been performed by motorized vehicle. Costs of livestock management and maintaining range developments in those locations where vehicular access is curtailed may increase. New rangeland improvements will not be allowed solely on the basis that they will aid intensive management resulting in increased grazing, but must show that they would protect resource values.

3. Cultural

The cultural resources program may experience some negative impacts from wilderness designation. Motorized access to and development of cultural sites for educational purposes will not be allowed. Costs of conducting archaeological research may increase, since new roads cannot be built and laboratory and living quarters will have to be located outside of the wilderness areas.

4. Lands

Access to private inholdings is assured and no restrictions would be placed on development of private parcels. If private landowners wish, land exchanges for parcels outside a wilderness area could occur.

5. Energy and Minerals

Impacts to the geology, energy, and minerals programs resulting from wilderness designation are: 1) segregation of public lands against appropriation or disposition under the mining laws, mineral leasing laws, and other mineral disposal authorities; 2) constrained energy and minerals operations on pre-designation leases and valid mining claims; 3) constrained prospecting activities on unappropriated lands; and 4) the preclusion of energy and mineral developments on newly discovered deposits.

6. Forestry

The harvest of woodland products would be prohibited except for collecting dead firewood for use inside the wilderness area. This would only be significant in the Cedar Ridge and Red Spring WSAs.

Standard No. 3: Impacts of Nondesignation on Wilderness Values

Increasing pressure for exploration is being placed on the land in the Elko Resource Area by oil, gas and hard rock mineral exploration companies. So far, oil and gas exploration has been generally concentrated in valley areas while hardrock exploration and development has occurred on the bench lands and mountains. The impacts of individual exploratory operations range from almost none to severe. The cumulative impacts of many such operations in one WSA could profoundly affect the naturalness of the area.

This general trend of increasing exploration is almost certain to continue, with temporary anomalies due to fluctuations in mineral prices and supplies. Nondesignation of wilderness study areas would open these lands to normal exploratory practices, which could severely damage the mandatory wilderness characteristic of naturalness. This damage could remain indefinitely in the steppe climate of northeastern Nevada.

The impacts on naturalness caused by energy and mineral exploration and extraction are usually subtle and cumulative. This explains the reaction of many publics who question the need for wilderness designation. Impacts to the land are generally unnoticeable to the casual observer because of their accretive nature, and this leads to the assumption that the lands are self-protecting. However, they are not self managing.

With nondesignation, resource development activities may contribute to the cultural resource management by making and reporting site discoveries in association with their activities on these lands.

More detailed analysis of impacts are presented in the individual study area analyses.

Standard No. 4: Public Comment

Comments received throughout the initial and intensive wilderness inventories included those that supported WSA classification because of the outstanding qualities of the WSAs as well as those that disagreed with that assessment. The latter stated that the areas are roaded, there is good oil and gas, geothermal, and mineral potential, and that the areas lack outstanding characteristics. Comments received during the Elko Area RMP issue identification phase also were generally from those either opposing or supporting wilderness designation of the WSAs. Public comment is reviewed in greater detail in each study area's analysis.

Standard No. 5: Local Social and Economic Effects

1. Social Analysis:

Wilderness is one of the most visible and controversial issues in the Resource Area. The term "wilderness" evokes strong feelings from proponents and opponents of the concept that some areas should remain essentially unmodified by human development. Opponents who

reside in the resource area interpret wilderness as an area "locked-up" against any uses but occasional solitary enjoyment by those whose livelihood does not depend on the economic use of resources in the areas proposed for wilderness designation. In the resource area, as in many parts of the West, there is resentment of the suggestion that any publicly owned open spaces should be encumbered by regulations against particular uses. Unregulated public access to public lands is jealously guarded as a birthright. The wilderness program, perhaps more than any other Bureau program, threatens their sense of freedom to pursue those particular uses that have historically and traditionally been pursued.

Proponents of wilderness are concerned about the preservation of wilderness study areas for their, among other things, scientific, educational and cultural values. The level of conflict that is evident between those who oppose and those who support wilderness will probably continue to exist at about the same level as both groups assert that the public interest requires decisions more favorable to their respective constituencies at the local, regional and national levels.

The ranching sector has expressed concern that wilderness designation could negatively impact the range improvement program by placing restrictions on future range improvements. There is also an air of uncertainty within the wilderness program and its future. Specifically, there is some concern that wilderness ground rules may change under future political administrations. To prove the point, other natural resource management policies, particularly those affecting range, are cited as having fluctuated from political administration to political administration.

A series of public meetings were recently held in Elko, Eureka and Lander Counties to develop "plans or policy statements concerning the use of lands in Nevada which are under "federal management" as directed by the 1983 Nevada Legislature in Senate Bill 40. Differing perspectives regarding wilderness were evident at the meetings to provide public input into the three County plans. For example, at the Carlin, Nevada, workshop, some workshop participants wanted no wilderness or if wilderness were to be designated, requested that it be reviewed periodically. Wilderness discussions were conspicuous by their absence at the Wells, Nevada, workshop. At the Eureka workshop, those present felt the county and residents should have greater input regarding designation and be able to review each area for its merits.

The Elko County Draft Plan, dated February 12, 1985, indicates that the Elko Board of County Commissioners are on record formally opposing any further wilderness designation of U.S. Forest Service Lands in Elko County beyond the already existing Jarbidge Wilderness Area. The plan also states, "It is felt that wilderness values will be protected by current remoteness and no additional areas should be designated until there is a demonstrated need." The plan then

proposes four wilderness policy statements, one of which states, "The existing Jarbidge Wilderness should be reevaluated to determine if the wilderness designation should be eliminated." Lander County's Draft Plan, dated July 12, 1984, indicates a somewhat more negative stance toward wilderness. That Plan states, "The Lander County Commissioners adopted a Resolution Concerning Wilderness Designations in Lander County on April 4, 1984. That resolution resolved that "the Lander County Commissioners hereby deem all areas of Lander County to be unsuitable for wilderness designation." Participants who attended workshops during the developmental phase of the Lander County Plan "expressed a concern that wilderness designation would be too restrictive on land use options and would create management problems. At the time these concerns were expressed, there were small portions of three wilderness study areas being considered in Lander County. The Eureka County Draft Plan, dated February 10, 1985, states that "Wilderness designation should be made for those wilderness areas where the values of wilderness are capable of balancing lost resource values and uses."

Much of the resistance to wilderness primarily concerns the issue of minerals potential, particularly around Carlin which lies in the middle of a highly mineralized belt. The rationale frequently expressed by the mining sector regarding wilderness states that the technology within mining and related fields is continually improving making a deposit which might now be uneconomic into a productive and profitable mine a few years from now. Any program that places or has the potential of placing constraints on mineral development activities now or in the future is viewed by the mining sector with apprehension if not alarm.

The four WSAs are utilized for livestock grazing by nine permittees. These lands are important economically to these individuals, and the social aspect of the ranching way of life is very important to these ranchers and Elko County as a whole.

2. Economic Analysis:

Economic interest in the WSAs derives from their use for grazing, recreation, forest products, mineral exploration, and taxable assets. Analysis of these productive uses of the potential wilderness resource indicates that no significant alteration of the area economy may be expected to occur due to formal wilderness designations. While there may be some minor trade offs in income and employment impacts, with particular industries such as recreation being enhanced, and mineral extraction being discouraged, the basic structure of the local economy will remain intact. Impacts at the State and national levels, exclusive of intangible wilderness preservation values and the state and county share of mineral leasing revenues, will be unnoticed.

Wilderness designation would not have any significant impact on range use because grazing would continue following designation. Restrictions on the harvest of woodland products, already limited by the available resources, would adversely affect local users but result in no noticeable effect on community economic activity.

There is no conclusive evidence that significant increases in recreation use will occur, or that the average annual rate of increase in recreation use will be accelerated due to designation. However, initial, temporary changes may be expected due to publicity and increased public awareness. Such exchanges as may occur do not hold the promise of either important economic benefits or disruptive impacts. The retail trade and services industries, particularly hotels and lodging places, eating and drinking places, and recreation services would benefit moderately from any increased recreation use. Any additional demand, however, is expected to be insufficient to encourage the entry of new businesses, but would most likely be manifested in increased sales.

Presently, there is no mineral production within the WSAs. Existing data on potential are unamendable to analysis for economic significance.

Wilderness designation will have no significant effect on the tax structure, itself, or the amount of revenues received. The Bureau of Land Management Payments In Lieu of Tax funds for Elko County in Fiscal Year 1983 amounted to \$464,554. Unless there is a change in this program these funds would continue.

The State of Nevada receives 50 percent of all mineral leasing revenues, a percentage of grazing revenues, and 4 percent of all revenues from sale of lands and materials. A portion of these funds are then redistributed on a pro-rata basis to the counties. Grazing revenues should remain the same, suffering only from the loss of development of potential additional animal unit months (AUMs). Revenues from sale of lands and material will be unchanged. Losses in mineral leasing revenues, while of estimable value, are insufficient to be considered significant.

Income and Employment

Income and employment occurring within the WSAs comes from livestock grazing and mineral exploration. Also associated with the WSAs is some unquantifiable recreation generated income and employment.

Income and employment in the livestock industry will remain within its present levels and trends, suffering only the loss deriving from foregone development of additional grazing lands.

While there is no current mineral production within the WSAs, and therefore no income, there is some unidentified exploration employment occurring. This would be foregone along with any potential employment associated with mineral development.

Income and employment in the recreation-related trades and services sectors are expected to be moderately enhanced. The degree of enhancement which will occur will depend entirely on the tastes of the recreation public and the level of desirability and challenge which is attached to particular wilderness areas.

Grazing

Livestock production within the WSAs consists of cattle and sheep grazing, with ecological conditions varying from early to late seral stages. On the whole, the value of livestock production within the WSAs is insignificant on a regional or national level.

Wilderness designation would not result in the reduction of present AUM preferences. However, there will be some loss of potential additional forage due to the preclusion of vegetative manipulation projects. Restrictions may also be imposed on the number and type of range improvements that may be implemented under present AMPs. However, if the required benefit/cost analysis should show such improvements to be uneconomic, their restriction would not involve economic losses. Water developments, such as catchments, springs, and pipelines that create no conflict with wilderness values could be allowed.

Wilderness designation is expected to have no impact on the loan value of ranches. Discussion with the Federal Land Bank in Reno affirms that their loans are based on estimated ranch values with present grazing preference (AUMs). They do not consider "future" AUMs, either positively or negatively; and whether an area is designated wilderness or not, the present number of AUM is the determining factor.

There may be slight additional costs to some ranch operations due to limitations on motor vehicle access for range improvement maintenance, water hauling, salting, and surveillance. These costs do not appear to be significant. A previous study (unpublished research report, BLM, Oregon State Office, 1982) estimated the average mile for 1 horse and rider, plus \$0.39 for each packhorse, or \$0.07 per AUM.

Minerals

The major problem underlying economic evaluation of minerals is the great uncertainty regarding the existence of mineral deposits in sufficient quantity and quality to be commercially feasible. At present, mineral potential is indeterminate. In addition, long range mineral resource evaluation and market demand estimates are at best speculative. Both mineral resource evaluation and development are directly dependent upon market demands that may be regional, national, or worldwide in scope.

Locatable minerals include the precious and base metals. Gold, silver, mercury, copper, tungsten, antimony, iron ore, turquoise, diatomite, zinc, lead, and barite have all been or are currently being produced in the resource area. However, no mineable quantities of ore have been located in the WSAs. Nevertheless, several mining claims and a potential for precious and base metal production do exist.

The WSA contain potential deposits of various metallic and nonmetallic minerals, but knowledge of reliable reserve estimates for these commodities and their locations is lacking. It is impossible with existing information, and beyond the scope of this study, to estimate the potential impact that extraction of these and other mineral commodities might have on the local economy and work force.

Mineral entry in the WSAs would be prohibited following designation. Further, development of all valid mineral rights established prior to designation will be subject to reasonable regulations of access and reclamation in order to protect wilderness values. This may result in additional costs to potential operators and, therefore, discourage development.

Leasable minerals are oil and gas, sodium, potassium, and geothermal steam. Much of the resource area is classified by the U.S. Geological Survey as prospectively valuable for oil and gas. Red Spring and Cedar Ridge WSAs have high potential for oil and gas. Though a total of 21 oil and gas leases are in effect within the WSAs, no production has yet occurred. Potential reserves cannot be estimated. Oil and gas leases will expire as a result of wilderness designation if there is no production within the 10-year life of the lease. There are no geothermal leases within the WSAs.

The 21 oil and gas leases within the WSAs cover approximately 15,130 acres and provide lease revenues to the State of Nevada estimated at \$7,500. These mineral leasing revenues represent less than one percent of those paid to the state from Elko County, alone (estimated at \$864,160). While certainty of noticeable value, they cannot be considered significant.

Recreation

The restrictions of vehicle use in the WSAs will tend to reduce the number of recreation visitor days associated with hunting, off-road vehicle use, and other vehicle supported recreation such as rockhounding, and vehicle camping. However, vehicle dependent recreation which may be excluded from WSAs will not simply cease to occur but, instead, be displaced to adjacent public land areas which surround the WSAs in abundance. Thus, it is expected that any net impact on the area economy due to restriction of vehicle access will not be significant.

At the same time, it has been documented that wilderness areas tend to attract recreation use by virtue of the publicity associated with formal wilderness designation. It is expected that primitive and unconfined recreation activities such as nature study, day hiking, camping, backpacking, horse packing, mountain climbing, rock climbing, and caving will increase at some small, probably insignificant, measure on an annual basis. This increased visitation should result in a comparable increase in recreation expenditures and recreation-related local income and employment.

An additional benefit will be realized in the increase in intangible values enjoyed by recreationists, which may be considered to accrue to the National Economic Development account. This account measures changes in the value of goods and services provided, and includes the "willingness-to-pay" value of recreationists.

None of these effects are sufficient to be considered significant.

Woodland Products

No economic impact is anticipated as a result of wilderness restrictions on the gathering and harvesting of woodland products. No timber production occurs on any lands within the Resource Area. Production of woodland products consists of cutting of firewood, poles, posts, and Christmas trees, and some pine nut gathering, a limited amount of commercial harvesting is permitted. No significant economic activity is generated in the community by this resource utilization.

Lands

The existing use of private land inholdings would be continued. Access is assured and no restrictions would be placed on development. No impacts on land values, or the income and employment which derives from their use, are anticipated due to wilderness designation.

The potential for development of these lands for recreation services does exist, but appears to be improbable. Present recreation use is sporadic, limited, dispersed, and insufficient to be documented.

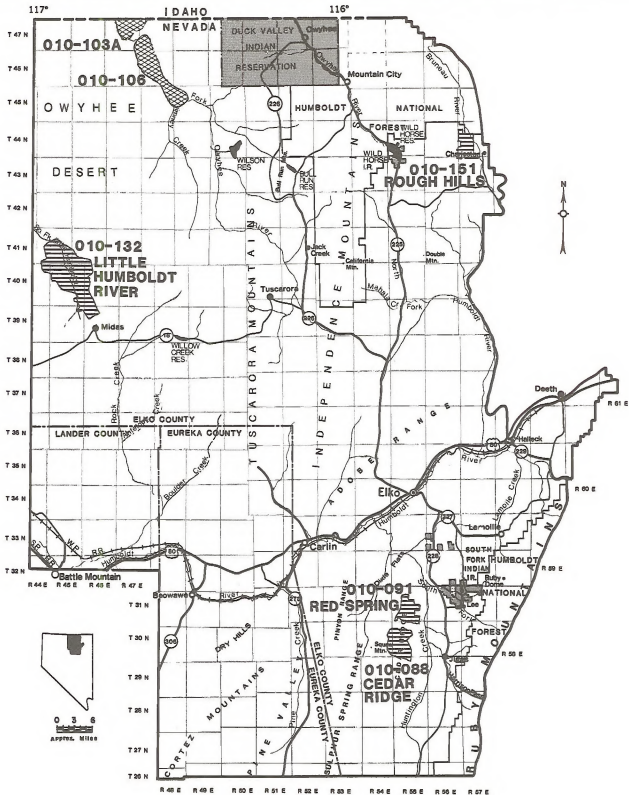
Standard No. 6: Consistency with Other Plans

Wilderness designation is consistent with FLPMA, the Nevada Statewide Comprehensive Outdoor Recreation Plan (SCORP) dated August 6, 1982, and the General Plan for Elko County dated June 1971. For example the SCORP says that the State of Nevada should:



- 1) preserve a representative cross section of Nevada's roadless, undeveloped areas in wilderness, and
- 2) offer positive support to Federal agencies charged with recommending areas for inclusion in the National Wilderness Preservation System.

Page 73 of the Elko County Plan recommends the "conscious preservation of open space. These essentially take the form of wilderness and scenic areas, drainage basins, and areas of historical or cultural significance. Most require a bare minimum of maintenance other than a policy prohibition of any development which would change their intrinsic character." This has indicated a consistency with wilderness preservation.

Under SB40, Elko County is currently developing a new county plan in relation to federal lands. It appears that the final plan will contain language significantly opposed to further wilderness designations within Elko County.



LEGEND

-  Wilderness Study Area analyzed in the Elko Wilderness Technical Report
-  Wilderness Study Area within the Elko Planning Area analyzed in the Owyhee Canyonlands Wilderness EIS

MAP 1

UNITED STATES DEPARTMENT OF THE INTERIOR
 BUREAU OF LAND MANAGEMENT
 ELKO RESOURCE MANAGEMENT PLAN
 AND ENVIRONMENTAL IMPACT STATEMENT

**WILDERNESS STUDY AREAS
 LOCATION MAP**

1985

ROUGH HILLS WSA (NV-010-151)

The Rough Hills Wilderness Study Area lies approximately 60 air miles north of Elko, Nevada. The unit is comprised of 6,685 acres in a rectangular shape, approximately 3 miles on its east-west axis by 4 1/2 miles on its north-south axis. The highest peak is 7,923 feet, approximately 2000 feet above the Bruneau River. The topography of the WSA is extremely mountainous and includes eight drainages and over 2 miles of the Bruneau River Canyon.

TABLE 2

ALTERNATIVE

	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>
Suitable Acres	0	0	6,685	6,685	6,685
Nonsuitable Acres	6,685	6,685	0	0	0
% WSA Suitable	0	0	100	100	100
% WSA Nonsuitable	100	100	0	0	0
% of R.A. Suitable	0	0	.002	.002	.002

Criterion No. 1: Evaluation of Wilderness Values

Wilderness values i.e., naturalness, outstanding opportunities for solitude or primitive and unconfined recreation, special features, multiple resource benefits, and diversity in the National Wilderness Preservation System would be enhanced with designation of the 6,685 acre area under Alternatives C, D, and E.

Component No. 1: Quality of the Area's Mandatory Wilderness Characteristics

A. Naturalness

The 6,685 acre WSA is natural. There are no roads, man-made improvements, cherry-stems, or other intrusions except the short way in Inez Gulch within the southwest corner of the WSA.

There are two private inholdings, 160 acres in Jungle Basin and 40 acres on the South Fork of Bear Creek, which are natural in their present state but could be impacted at a later date. However, the ruggedness and lack of access to these areas would greatly deter construction of any man-made features. Moreover, any future impacts associated with construction are not foreseen as being significant overall to the WSA. Impacts would be discernable only when viewed from close proximity.

B. Outstanding Opportunities for Solitude or Primitive and Unconfined Recreation

1. Solitude

The topographic screening in the WSA is fair to outstanding overall. The meandering axis of the main ridge and the area to the west of the ridge offer some screening from encounters by recreationists. The area east of the ridgeline offers excellent topographic screening with numerous winding drainages and the Bruneau River canyon.

Vegetative screening is less than outstanding overall because of the large steep barren rock canyon faces, however, the tree and brush areas of the canyons offer numerous well distributed opportunities for experiencing isolated camping.

The effects of outside sights and sounds could be felt in some locations within the unit due to its small size and extreme relief in relation to outside areas. However most outside effects are slight in comparison to the grand vistas present from these same locations.

Overall, within the WSA, there are numerous areas where outstanding opportunities for solitude exist.

2. Primitive and Unconfined Recreation

Opportunities available in the WSA include backpacking, camping, hiking, horseback riding, hunting, fishing, wildlife observation, floating, sightseeing, photography, rock climbing and gold panning.

Backpacking/camping: Deceiving for its compact size, the ruggedness and steepness of the WSA will require 2 or 3 days to cover by foot. Movement within the area is challenging and difficult, especially to reach the higher areas. Many routes require climbing on hands and knees. The upper ridge and peaks offer majestic views in all directions which are rewarding to the climber. Much of one day can be expended just climbing along the ridgelines and exploring the upper basins. The ridges are windswept and barren offering little opportunity for camping, but several basins below the ridge on the lee side offer compact but sheltered camping sites. The lower elevation drainages offer easy travel along their courses. However, the hiker is presented with a moderately difficult challenge in crossing from one drainage to another. The drainages offer many excellent camping sites within aspen stands.

Hiking: Excellent day hikes are available along the lower drainages. Entering the WSA from the boundary road on the northeast corner of the unit, the Bruneau River and Copper Creek offer excellent day hikes. The shallow river and associated riparian habitat areas are easily traversed and attractive.

Horseback riding: Horseback riding and outfitting occur in the WSA in association with hunting and fishing trips. The lack of trails and their ruggedness hamper riding for pleasure and limit the area to expert riders. The willows, rockiness of the riverbottom, and lack of trails also limit pleasure riding in the Bruneau River Canyon.

Hunting: Animals hunted in the WSA include mule deer, chukar partridge, blue and ruffed grouse, and sage hens. While there is outstanding hunting available, the ruggedness of the WSA limits hunting pressure.

Fishing: Fishing for rainbow trout is good to excellent. About 970 angler days per year are reported on the Bruneau River, but most of it is downstream from the WSA.

Wildlife Observation: The unit is key summer range for mule deer. Chukar are common throughout the area with low to high densities. In addition, sage grouse, Hungarian partridge, and valley quail are present but in low numbers. Migratory bald eagles have been observed along the Bruneau River, however no sightings have been recorded within the WSA. Furbearers occur along the Bruneau River and Copper Creek. Species include river otter, muskrat, mink, raccoon, and beaver.

Floating: The Bruneau river is shallow most of the year. However, several weeks of high spring run off offers good opportunities for floating into the Idaho portion of the Bruneau, a popular white-water river.

Photography: The twisted volcanic rock flows and domes as well as the abundance of wildlife provide outstanding photographic subjects. The panoramic views from the peaks and ridges also offer outstanding photographic opportunities.

Gold Panning: The Bruneau River and Copper Creek provide good locations for hobby gold panning. Volcanic gravels along the river and nearby tributary creeks outside the WSA yielded placer gold in the late 1870's. However, recent sampling inside the WSA boundaries contained no visible gold. The combination of nearby historic finds and the gravel deposits within the unit make this an attractive area for hobby panning, although gold deposits are not present within the WSA.

Outstanding opportunities for primitive recreation exist in the WSA because of the diversity of activities available as well as outstanding opportunities for backpacking, hunting, and photography.

Component No.2: Special Features: Quality of the Area's Optional Wilderness Characteristics

The island-like effect of the Rough Hills in relation to the mountain ranges around it results in outstanding value. Vistas of up to twenty miles to the subalpine regions to the north, east, and west stand in stark contrast to the steppe basin and range areas to the south. Mahogany forests, aspen stands, and the river drainage generally appear in the middle to foreground areas and add contrast to the scenic views. Excellent scenic values also exist along the Bruneau River and Copper Creek. The picturesque contrasts of rugged rock formations, riparian meadows and vegetation, and the water body offer scenic values far from common in Nevada.

The contorted and eroded geologic features of the area are unique as well as picturesque. Whole canyon walls appear convoluted into grotesque formations which invite exploration.

No archaeological survey or site data is available for the study unit proper. The most significant find in the general vicinity is Deer Creek Cave which is located about 16 miles northeast of the WSA. This site was occupied from 10,000 years ago to the Historic period. Early sites of this type are uncommon and therefore, highly significant. From Deer Creek Cave we know the area was occupied quite early and more archaeological sites of great significance may be found in the study area when surveyed.

On the average, an archaeological site is found on every 60 acres surveyed within the Elko District. About 110 archaeological sites should be within an area the size of the study unit. These sites may be divided into three categories: 1) Open Aboriginal, 2) Caves or Rock Shelters and 3) Euro-American Historic. The number and type of archaeological sites within a given area is highly variable depending on available resources, geography, and cultural affinities involved. Hence, the accuracy of site estimates is directly related to the quantity and quality of survey data available for a particular area. Site type estimates are as follows:

1) Open Aboriginal	100
2) Caves and Rock Shelters	5
3) Euro-American Historic	5

Component No. 3: Multiple Resource Benefits: The Benefits to Other Multiple Resource Values and Uses Which Wilderness Designation of the Area Could Ensure

A. Values That Already Exist:

Wilderness designation would ensure that the naturalness, outstanding opportunities for solitude and primitive and unconfined recreation, special features and other resource values in the WSA would be maintained or enhanced over time.

Wilderness designation generally would protect the archaeological resources in the WSA. Because of restricted vehicular access, the vandalism of sites would be reduced. Archaeological sites would therefore, retain their integrity for a longer period of time.

The interstate watershed quality of the Bruneau River Drainage (see Appendix I) would be protected from future deterioration if it were located within a designated wilderness area. Restrictions on surface disturbing activities, such as off-road vehicle use and the use of heavy equipment in mineral exploration and development would be beneficial to the watershed by maintaining the state water quality standards. Soil stability would also be benefited, thereby preventing potential increases in sediment production.

In general, wildlife habitat would be protected by wilderness designation because future developments destructive to habitat would not occur and closure to vehicle use would prevent wildlife harassment. Migrating raptors, including bald eagles, would also be protected by a wilderness designation because of restricted development.

Developments such as powerlines, roads, and gravel pits would not be allowed within a designated wilderness area, thereby, protecting scenic quality.

B. Benefits to Areas Outside the Wilderness Study Area

Downstream water quality and scenic values as viewed from outside, and wildlife populations outside the WSA would be enhanced by wilderness designation.

Component No. 4: Diversity in the National Wilderness Preservation System

Factor No. 1: Expanding the diversity of natural systems and features, as represented by ecosystems and landforms.

Rough Hills is an Intermountain Sagebrush, Great Basin Sagebrush ecosystem, 3130-32. Table 3 displays how this ecosystem is currently and potentially represented in the National Wilderness Preservation System.

TABLE 3
Intermountain Sagebrush Great Basin Sagebrush
Ecosystem 3130-32

<u>Statutory Wilderness</u>	<u>Acres</u>	<u>Units</u>
USFS (California)	7,020	2
<u>Administratively Endorsed</u>		
USFS (California)	6,830	4
USFS (Nevada)	20,000	1
FWS (Nevada)	611,180	1
<u>Other Study Areas</u>		
USFS (California)	126,430	11
USFS (Nevada)	21,409	3
BLM (California)	213,498	17
BLM (Nevada)	844,880	27
BLM (Utah)	6,406	1

Factor No. 2: Assessing the opportunities for solitude or primitive recreation within a day's driving time (five hours) of major population centers.

Rough Hills WSA is within a day's driving time of the Boise, Idaho Standard Metropolitan Statistical Area (SMSA). Table 4 displays the existing wilderness, administratively endorsed, and other study areas within five hours of Boise.

TABLE 4
Proximity to Boise, Idaho Population Center

<u>Statutory Wilderness</u>	<u>Acres</u>	<u>Units</u>
USFS (Idaho)	2,736,937	4
USFS (Montana)	1,390,573	2
USFS (Nevada)	64,830	1
USFS (Oregon)	501,898	3
NPS (Idaho)	43,243	1
<u>Administratively Endorsed</u>		
USFS (Idaho)	689,050	8
USFS (Montana)	96,144	2
USFS (Oregon)	68,180	2
FWS (Oregon)	30,000	1
<u>Other Study Areas</u>		
BLM (Idaho)	1,590,500	49
BLM (Oregon)	2,152,010	56
BLM (Washington)	975	1
USFS (Idaho)	407,392	4
USFS (Montana)	179,620	2
USFS (Nevada)	31,070	1
USFS (Oregon)	349,288	15

Factor No. 3: Balancing the geographic distribution of wilderness areas.

Rough Hills WSA is within 6 miles of the Jarbidge Wilderness.

Refer to Factor No. 3 on page 6.

Criterion No. 2: Manageability

The Rough Hills WSA is a 6,685 acre solid block of public land. Two private inholdings totalling 200 acres are within its boundaries (see Map 2). The compact regular shape, lack of cherry-stem intrusions, and lack of interest in any conflicting uses which would substantially impair or degrade its wilderness values, make it reasonably certain that the WSA could be managed for wilderness in the long-term, if designated. If development were to occur on the private inholdings, some of the WSA would be impaired but wilderness values overall would not be significantly affected. Impacts would be site specific to the area of development.

There are no parcels of state land within the WSA. There are not any improvements within the WSA which would require motorized equipment for maintenance. No management plans exist which would require mechanized construction of new projects.

The boundaries of the WSA are formed by existing fences, roads, and land formations, and are both identifiable and manageable. Some degradation of wilderness values would occur from nonconforming uses. However, the area can generally be well managed to maintain its wilderness character over the long-term.

In summary the area is considered manageable as wilderness in Alternatives B, C, D, or E of the Elko Resource Management Plan.

QUALITY STANDARDS

Standard No. 1: Energy and Mineral Resource Values

The following information is a synopsis of reports by the Nevada Bureau of Mines and Geology (Tingley and Quade, 1984) the Geology, Energy and Minerals (GEM) Assessment by Terradata (1983), Elko Area Mineral Resource Inventory, staff field work, and references as cited in the text. The mineral favorability classification system is explained and favorability for the various GEM resources listed in Table 5.

GEOLOGY

The Rough Hills are a rugged mountainous area of mid-Tertiary rhyolite flows, domes, plugs, and tuffs that have been incised by eastward-flowing tributaries of the Bruneau River. Older Tertiary volcanics crop out along the southeastern portion of the Rough Hills while Triassic siltstones extend along the southwest boundary. Paleozoic limestones and quartzites of the Sun Flower Formation follow the westward margin of the WSA and older Tertiary volcanics, along with Paleozoic and Cambrian quartzites, occur to the north and east of the study area (Coash, 1967).

Headward erosion along Cornwall Creek has captured the stream flow into Cornwall Basin diverting it into the Bruneau River. Currently the stream is down-cutting the older volcanics that form the floor of Cornwall Basin exposing white rhyolite tuffs. The WSA is underlain at an unknown, but estimated depth of 1000' to 2000' by Paleozoic sedimentary rocks.

The WSA is within the block-faulted basin and range province. One of the major structures in the vicinity is a northwest striking normal fault which follows the western edge of the Copper Mountains one to two miles east of the WSA. The fault down-drops Tertiary volcanic rocks against Cambrian and Upper Paleozoic sediments which host mineralization in the area.

GEOLOGY, ENERGY, AND MINERAL (GEM) RESOURCES

Locatable

As of March 1985 there are no recorded mining claims in the WSA, although old claim posts and a small placer gold prospect pit were noted at the confluence of Copper Creek and the Bruneau River. Except for this prospect pit there is no evidence of mineral development in the WSA. A few holes were drilled in Paleozoic siltstone for precious metals one mile west of the southwest boundary of the WSA in 1984. Results from these drillings are not known (Elko District case files).

The Island Mountain mining district is adjacent to the western boundary of the WSA and derives its name from a prominent hill about 5 miles west of the WSA where gold was discovered in placer gravels near the junction of Gold and Martin Creeks in 1873. The gravels were worked continuously until 1902 with the greatest period of production between 1895 and 1898. The lack of water in this part of the district was one of the main reasons for the decline in placer activities (Coash, 1967).

TABLE 5

Mineral Favorability Of The
Rough Hills WSA

COMMODITY	AREA	CLASSIFICATION LEVEL	CONFIDENCE LEVEL
Metals	Entire WSA	3	C
Geothermal	Entire WSA	1	C
Uranium/Thorium	Entire WSA	1	A
Coal	Entire WSA	1	C
Oil and Gas	Entire WSA	2	B
Tar Sands/Oil Shale	Entire WSA	1	C
Limestone	Entire WSA	2	C
Bentonite	Entire WSA	2	A
Diatomite	Entire WSA	1	B
Clinoptilolite	Entire WSA	1	B
Barite	Entire WSA	3	A
Silica	Entire WSA	3	C
Phosphate	Entire WSA	2	C
Paleontology	Entire WSA	2	A

LEGEND: Favorability of the Geologic Environment to Contain GEM Resources

Class 1 - Least Favorable

Class 2 - Low Favorability

Class 3 - Moderate Favorability

Class 4 - High Favorability

Confidence Level A - Insufficient data or no direct evidence

Confidence Level B - Indirect evidence available

Confidence Level C - Direct evidence but quantitatively minimal

Confidence Level D - Abundant direct and indirect evidence

The first lode deposits in the Island Mountain Mining district were discovered on Rosebud Mountain where joints and faults in the Prospect Mountain quartzite of Cambrian age were found to be mineralized. The initial discovery was made at the headwaters of Rosebud Creek several miles northwest of the WSA. The veins were characterized by high silver-lead content with minor gold and in some places, copper-iron sulfides. Similar mineralization was found in the same rocks and structures on Pine Mountain several miles north of the WSA. The gold bearing placers of Gold Creek, Martin Creek and Rosebud Creek all originate on the sides of Rosebud Mountain and flow to the west (Bushnell, 1967). A fourth stream (Cornwall Creek) flows southeast between Rosebud and Pine Mountains, into Cornwall Basin, eastward along the northern margin of the WSA, and into the Bruneau River. A concentrate sample from this stream, taken just north of the Colvin Ranch, ran 70 parts per million (ppm) silver, 100 ppm gold, 3000 ppm lead and 700 ppm tungsten. There is no evidence that this stream has ever been worked for placers (Quade and Tingley, 1984).

About three quarters of a mile to the west of Cornwall Basin on the eastside of Cornwall Mountain is the site of the St. Elmo Mine. The mine was opened in 1940 and closed in 1950 during which time extensive tunnels and workings explored gold and silver bearing quartz veins, but there is no record of production.

The Charleston Mining District extends along the entire eastern boundary of the WSA and includes the Bruneau River drainage from Dry Creek south of Charleston to Coon Creek 11 miles north of Charleston. The history of the district has been well documented by Schrader (1923) and Vanderburg (1936). Briefly, the earliest discoveries were gold placers at Seventy-Six Creek in about 1876 with later placer discoveries at Badger, Pennsylvania, Union and Dry Creeks, all tributaries of the Bruneau River.

Lode mining included gold, silver, copper, antimony and barite production from the Prunty, Graham, Rescue, Slattery and Seventy-Six Mines beginning in 1905 and continuing intermittently, until the present. The host rocks are cherts, limestones, quartzites, sandstone and claystones of probable Ordovician age.

The entire WSA is classified as moderately favorable for metallic minerals (3C). The confidence level is based on the presence of known minerals and mines on all sides of the WSA.

Samples within the WSA (Quade and Tingley, 1984) are generally indicative of an unmineralized volcanic terrane, except for panned concentrate samples 182 and 189. Concentrate sample 182, from a drainage flowing from the southeast side of the WSA collected near the contact between older and younger volcanics, contained 150 ppm silver and 200 ppm lead. Sample 189, from rhyolite on the northeastern side of the WSA, contained 20 ppm silver.

Clearly, ranking the metallic mineral potential of the WSA is something of a dilemma. The youthful volcanic pile that makes up the Rough Hills does not appear to be highly mineralized but the rocks surrounding and underlying the volcanics may contain metallic mineralization. Although the metallic mineral potential is moderate, it may never be economically feasible to discover and develop (Quade and Tingley, 1984).

Leasable

Oil and Gas

As of March 1985 there were no oil and gas leases in the WSA. The WSA is classified as having low favorability for oil and gas (2C). Paleozoic sediments are presumed to be overmature for oil generation in the vicinity of the WSA (Sandberg, 1983) due to heating by volcanic and intrusive rock. Lower Tertiary sediments may have been heated to optimum maturity for oil generation, however, these sediments are very sparse in the vicinity of the WSA. Hence, the low favorability for oil and gas. The high structural position (uplifted mountainous terrain) of the WSA is also a limiting factor for oil and gas accumulations.

Geothermal

The WSA is rated unfavorable for geothermal resources (1C) as there is no evidence of geothermal activity, no very young volcanics, and no major faults in the WSA (Mathews and Blackburn, 1983). The WSA is rated as having low favorability or is unfavorable for other GEM resources (Table 5).

CONCLUSIONS

- 1) There are no mining claims in the WSA and the only evidence of mineral development is one small prospect pit.
- 2) The WSA is moderately favorable (3C) for metallic minerals based on the presence of known minerals and mines on all sides of the WSA.
- 3) The WSA is covered by a substantial thickness of unmineralized rock making development of potentially mineralized areas underlying the WSA economically unfeasible under current technology.
- 4) There are no oil and gas leases in the WSA and the WSA has at best low favorability (2C) for oil and gas.

Standard No. 2: Impacts on Other Resources (including Wilderness) by Alternatives C, D, and E.

Wilderness

Under these alternatives the wilderness resource would receive maximum protection which would ensure the wilderness integrity of the area.

Designation would serve to protect the wilderness values of the area from impacts of mineral exploration and extraction, and range development. These would be significant beneficial impacts occurring in both the long and short-terms.

Minerals

Wilderness designation under Alternatives C, D, and E would result in an adverse, but not significant impact to minerals. The area would be segregated from all forms of mineral entry, with the exception of valid existing rights (none as of March 1985). This would preclude drilling in the area and the potential discovery and development of mineral resources would be foregone. The area has low potential for leasable minerals. The WSA has moderate potential for locatable minerals, however, the presence of 1000-2000 feet of unmineralized volcanic rock over potentially mineralized zones makes it unlikely that minerals could ever be economically discovered or extracted.

Range

The present ecologic status of the rangeland in the WSA is good, being categorized in the late seral stage. Two allotments cover the unit: Rough Hills on the north, and Annie Creek on the south. Cattle and horses are grazed. The WSA contains 1,024 combined AUMs; 137 in Anne Creek; 887 in the Rough Hills Allotment.

Future quality is expected to remain the same. The two allotments are not separated by fence within the WSA. If the WSA is designated as a wilderness, the south boundary of the unit would not be fenced and those AUMs within the wilderness area of the Annie Creek Allotment could still be run in common with the Rough Hills Allotment. No substantial impacts to grazing are expected to occur with designation.

Forestry

The Rough Hills WSA contains aspen and mahogany stands and a few scattered juniper trees. These account for an insignificant percentage of the woodland resource within the resource area. Wilderness designation would not impact the Resource Area's woodland products program.

Wildlife

Enhancement projects such as browse and/or forb plantings and stream bank structures could be constrained.

Lands

A 200 acre Public Water Reserve exists entirely within the unit at the confluence of Copper Creek and the Bruneau River. Wilderness designation would protect this from mineral activity impacts, but would constrain development of water projects.

Recreation

As there is no off-road vehicle use in the unit, designation would not impact recreation in the area. Some light increased use might result from the notoriety of designation, however this is not expected to be an adverse impact.

Cultural Resources

Refer to the Quality Standard, No. 2, B.3 on page 7.

Standard No. 3: Impacts of Nondesignation on Wilderness Values (and other resources) by Alternatives A and B.

Other than wilderness, no new designation for the WSA area is anticipated. Grazing and recreational activities would continue.

Wilderness

In the event of nondesignation, the wilderness characteristics would probably remain unimpaired for the most part. Random ORV use could cause impacts to some lower elevation areas and drainages. This impact would be slight and restricted to localized sites at most. The potential of this occurring is remote although possible.

While the possibility of mineral exploration is remote (see Quality Standards Number 1), any roads constructed for mineral exploration within the unit would significantly impact naturalness and primitive recreation activities.

A possible allotment boundary fence all the way across the WSA would cut the lower third of the unit east to west and be substantially noticeable over the southern half of the area. This would result in a moderate loss of naturalness.

Minerals

Non-designation as wilderness would have a beneficial impact to minerals, however, the impact is not significant due to the low probability of economic mineral occurrence.

All mineral and energy exploration and development would be managed under existing applicable laws and regulations governing such activities on the public land.

Range

A suggested boundary fence between the two existing grazing allotments would probably be constructed. The fence would be constructed primarily to denote boundaries with a secondary reason of livestock management.

There are no other proposed or anticipated range improvements within the WSA. Past methods of grazing management have been via horseback which, due to the ruggedness of the area, will probably continue in the future. Therefore, there would be no savings in time nor expense to the rancher due to nondesignation.

Forestry

There would be no adverse or beneficial impacts to woodland products under these alternatives.

Wildlife

An indirect adverse effect of these alternatives is that wildlife habitat would not be afforded the long-term resource protection provided by wilderness designation. However, due to the good condition of the habitat, it is not anticipated there would be any projects proposed in the long-term.

Recreation

Under these alternatives there would be no increase in ORV opportunities resulting from nondesignation, due to the ruggedness of the area.

Cultural Resources

Management and protection of cultural resources would continue to be guided by all of the applicable laws affecting these resources. An indirect adverse effect of these alternatives is that cultural resources would not be afforded the added long-term resource protection provided by wilderness designation, which would limit impacts and vandalism associated with some ORVs and their use.

A beneficial impact would be the ability to use motorized generators and compressors and other equipment, where accessible, for excavation activities should this become necessary, thereby lessening research costs.

Standard No. 4: Public Comment

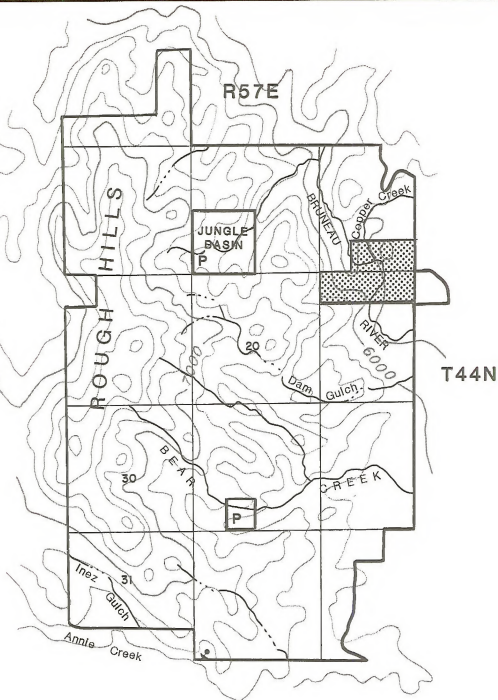
During the wilderness inventory process BLM received 11 specific comments on this unit. A few noted intrusions. The majority noted the area was completely natural and had many outstanding opportunities for recreation and solitude. Several noted supplemental and other resource values. Also received were 2,327 general comments stating the unit meets the wilderness criteria.

Standard No. 5: Local Social and Economic Effects

Two grazing permittees currently operate within the unit without motorized vehicles. There would be no increased costs of operation resulting from wilderness designation. There is a licensed Guide and Outfitter working out of the Prunty Ranch who guides within the unit. Therefore, designation may enhance his operation through increased notoriety of the area.

Standard No. 6: Consistency with Other Plans

Refer to Quality Standard No. 6 on page 14.



 PUBLIC WATER RESERVE

 DEVELOPED SPRING

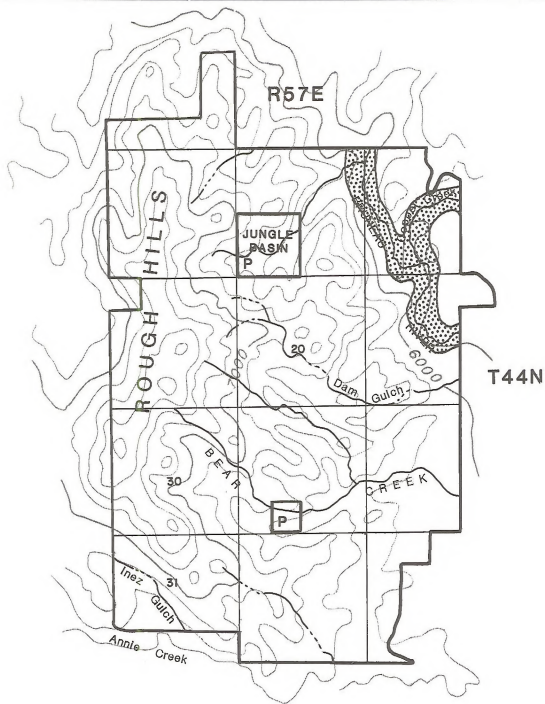
P PRIVATE LANDS





EXISTING SITUATION

ROUGH HILLS NV-010-151

MAP 2



-  SANDHILL CRANE USE AREA
-  DEER SUMMER RANGE



WILDLIFE
ROUGH HILLS NV-010-151

MAP 3

LITTLE HUMBOLDT RIVER WSA (NV-010-132)

The Little Humboldt River Wilderness Study Area lies about 65 miles northwest of Elko, Nevada, and about 3 miles north of Midas, Nevada. The unit is comprised of 42,213 acres. It is of irregular shape and is arranged along a diagonal axis northwest to southeast about 14 miles long by 9 miles wide. The study area is primarily the upper drainage basin of the South Fork Little Humboldt River, situated between the middle slopes of the Snowstorm Mountains on the west, Castle Ridge on the east and Owyhee Bluffs on the south. The twelve miles of river, Winters Ridge, Castle Ridge, Snowstorm Flat, Bush Creek, Winters Creek, Oregon Canyon, Snowstorm Creek, and First Creek constitute the main features of the area.

TABLE 6

ALTERNATIVE

	A	B	C	D	E
Suitable Acres	0	28,386	42,213	29,775	42,213
Nonsuitable Acres	42,213	13,827	0	12,438	0
% WSA Suitable	0	67	100	71	100
% WSA Nonsuitable	100	33	0	29	0
% R.A. Suitable	0	.009	100	.009	100

Criterion No. 1: Evaluation of Wilderness Values

Wilderness values i.e., naturalness, outstanding opportunities for solitude or primitive and unconfined recreation, special features, multiple resource benefits, and diversity in the National Wilderness Preservation System would be enhanced with the designation of the 42,213 acre area under Alternatives C and E. Wilderness values would be protected on 28,386 acres in Alternative B, and 29,775 acres under Alternative D.

Component No. 1: Quality of the Area's Mandatory Wilderness Characteristics

A. Naturalness

The imprints of man that constitute significant intrusions have been deleted from the WSA during the inventory phase of the wilderness program. Range improvements consisting of drift fences, are the primary imprints within the area.

The unit has 470 acres of private inholdings in 5 parcels. The largest being 200 acres, one contains 150 acres, and 3 having 40 acres each. Many parcels of private land along the west boundary are bordered on 2 or 3 sides by the study area.

There are 2 cherry-stem roads on the north side of the unit and 3 on the west side. Their combined distance is 7.9 miles. The unit contains 2 ways with a combined length of 6½ miles.

These segregated developments impact the feeling of naturalness in the immediate area of the improvement, but have no impact on naturalness in the area as a whole.

B. Outstanding Opportunities for Solitude or Primitive and Unconfined Recreation

1. Solitude

The size of the 42,213 acre area, its configuration, and the presence of only 5 short cherry-stemmed roads aid in the opportunities for solitude. Vegetative screening is good only along some of the side creeks. The wide flats to the west of the canyon area offer little topographic screening from other users. The rolling hills over much of the area offer moderate screening. The main canyon and numerous creeks and draws offer outstanding screening. Overall, within the WSA, there are numerous areas where outstanding opportunities for solitude exist.

2. Primitive and Unconfined Recreation

The deeply dissected, narrow twisted volcanic canyons, and creek confluences, with their spire-like formations, offer outstanding opportunities for photography, rock climbing, hiking, fishing and exploring. The mouths of the creeks offer equal attractions away from the main canyon.

A significant opportunity exists in viewing and photographing wild and free roaming horses. The area contains almost equal amounts of winter and summer wild horse range. The lack of vegetative screening and wide flat mesas and rolling hills between the entrenched creeks, which normally detract from wilderness values, are an enhancement for viewing wild horses. The numerous drainages and rock formations offer almost unlimited opportunities to sneak within close viewing distances of bands of wild horses in the open areas or for close encounters where they trail through narrow rocky gorges. The year round presence of the bands somewhere within the unit is unique. An estimated 150 to 200 wild horses exist within the unit, with the peak in the summer. With an average band size of 6-8 horses, there are numerous bands spread throughout the WSA.

Hiking: Opportunities for hiking vary from fair in the flats to very difficult within the canyon area. Trips would average 2 to 5 days.

Camping: Excellent camping exists among the aspens along the streams. Good camping opportunities occur within the canyon areas. Fair to poor camping opportunities are present within the northern third of the unit as limited sheltered sites along the river and the lack of water away from the river limit this activity.

Horseback Riding: Due to the presence of horse trails the area would provide excellent horseback riding opportunities. It would easily take a three day trip to fully explore the unit.

Fishing and Hunting: The river provides good fishing opportunities for Lahontan cutthroat trout. The population averages about 400 of these trout per mile of stream. The unique riparian habitat of the unit supports an outstanding diversity of large and small game and upland birds.

Nature Study: The rugged high rock formations combined with the good condition of riparian areas support a high population of cliff-nesting raptors, providing outstanding opportunities for viewing and study. Prairie falcons and golden eagles nest within the WSA. Chukar and valley quail are concentrated along the drainages.

Component No. 2: Special Features: Quality of the Area's Optional Wilderness Characteristics

The WSA provides a unique area for study of a transition zone containing portions of the southern Owyhee Cold Desert and the lower slopes of a Basin and Range aspen forest without the typical pinyon pine and juniper woodlands. Within the northern portion of the WSA, Artemesia packardiae, a rare sagebrush of concern to the Nevada Native Plant Society, is thought to occur.

Approximately 40 acres of this 42,213 acre WSA have been inventoried for archaeological resources. This small inventory was related to a proposed fence line and not a systematic sample devised to allow predictions about site density and sensitivity. Excavations at Ezra's Retreat, a few miles west of the study unit, uncovered artifacts from the Archaic period and other surveys in the general area indicate Numic occupation. Inventory from the WSA indicates use by man during the Archaic and Historic periods. It is probable that the study unit was also used during the Numic period and possibly the Paleoindian period, but more survey data must be obtained to determine this. In general, the area is considered archaeologically sensitive based on the limited information available and may be determined highly sensitive when further information becomes available.

On the average, an archaeological site is found for every 60 acres surveyed within the Elko District. Information gathered from the limited survey along a riparian zone in this area indicated a much higher density. However, the area surveyed would have been predicted to have a higher density, therefore, the average of 1 site per 60 acres may be more accurate for the unit as a whole. Using this figure, about 700 archaeological sites should be within an area the size of the unit. These sites may be divided into three categories: 1) Open Aboriginal 2) Caves or Rock Shelters, and 3) Euro-American Historic. The number and type of archaeological sites within a given area is highly variable depending on available resources, geography, and cultural affinities involved. Therefore, the accuracy of site estimates is directly related

to the quantity and quality of survey data available for the area. Site type estimates for the WSA follow:

- | | |
|------------------------------|-----|
| 1) Open Aboriginal - | 650 |
| 2) Caves and Rock Shelters - | 40 |
| 3) Euro-American Historic - | 10 |

The area provides a unique wild horse area due to its abundance of water, and equal areas of winter and summer range. The presence of 20 to 25 bands (150-200 head) of wild and free roaming horses within the area would compliment wilderness designation.

Component No. 3: Multiple Resource Benefits: The Benefits to Other Multiple Resource Values and Uses Which Wilderness Designation of the Area Could Ensure

A. Values That Already Exist:

Wilderness designation would ensure that the naturalness, outstanding opportunities for solitude and primitive and unconfined recreation, special features and other resource values in the suitable portions of the WSA would be maintained or enhanced over time.

Wilderness designation generally would protect archaeological resources in the WSA. Although very little of the WSA has been inventoried, it is reasonable to expect the WSA contains a variety of cultural sites. Designation would offer protection from vandalism to both known and potential undiscovered archaeological resources by limiting vehicle access. Wilderness users could, if properly educated, contribute information by reporting site locations where a survey has not been taken.

Location within a designated wilderness area would protect and enhance the future quality of the interstate watershed of the Humboldt River. Restrictions on surface disturbing activities, such as off-road vehicle use and the use of heavy equipment in mineral exploration and development would be beneficial to the watershed by maintaining state water quality standards. Soil stability would be enhanced thereby preventing potential increases in sediment production.

The WSA supports antelope during the summer months. River and creek bottoms as well as spring areas are also particularly important to deer at this time of year. A portion of the WSA supports a deer population yearlong. The western portion of the WSA contains a crucial deer summer habitat area which supports approximately 800 to 1000 mule deer. Upland game occur throughout the WSA. Sage grouse broods have been noted at higher elevations in the southwest corner of the unit. Chukar are common throughout the WSA but concentrate along rugged drainages. Raptors are common. Golden Eagles nest within the WSA. Mountain lions are present in low numbers.

In general, wildlife habitat would be protected by wilderness designation because future development would not occur and closure to vehicle use would prevent wildlife harassment. Migrating and

cliff nesting raptors would be protected by wilderness designation because of restricted development. The potential for reintroduction of bighorn sheep would be enhanced with wilderness designation because of the protection and seclusion which would be afforded the animals. Presently, the Nevada Department of Wildlife considers a portion of the Little Humboldt WSA as a high priority area for the reintroduction of California bighorn sheep. Suitable habitat within the WSA is limited to the South Fork of the Little Humboldt River and the immediate tributary creeks of Sheep Creek, Winters Creek, Snowstorm and First Creek.

In March 1983, the Winnemucca District acting under the Bullhead Allotment Coordinated Resource Management Plan committee (CRMP) initiated a fencing contract for about 11 miles of total fence within the WSA. This protective fence will serve to exclude livestock from along streams that are important habitat for the threatened Lahontan cutthroat trout, and a small cultural site. It is expected that the enclosure will improve wilderness values in the unit.

Developments such as powerlines, roads, and gravel pits would not be allowed within a designated wilderness area, thereby, protecting scenic quality.

B. Benefits to Areas Outside the Wilderness Study Area

Downstream water quality and scenic values as viewed from outside the WSA and wildlife populations outside the WSA would be enhanced by wilderness designation.

Component No. 4: Diversity in the National Wilderness Preservation System

Factor No. 1: Expanding the diversity of natural systems and features, as represented by ecosystems and landforms.

The Little Humboldt River WSA is an Intermountain Sagebrush, Sagebrush Steepe ecosystem, 3130-49. Table 7 displays how this ecosystem is currently and potentially represented in the National Wilderness Preservation System.

Factor No. 2: Assessing the opportunities for solitude or primitive recreation within a day's driving time (five hours) of major population centers.

The Little Humboldt River WSA is within a day's driving time of the Reno, Nevada SMSA. Table 8 displays the existing wilderness, administratively endorsed, and other study areas within five hours driving time of Reno.

Factor No. 3: Balancing the geographic distribution of wilderness areas.

Refer to Factor No. 3 on page 6.

Criterion No. 2: Manageability

TABLE 7
Intermountain Sagebrush, Sagebrush Steppe
Ecosystem 3130-49

	<u>Acres</u>	<u>Units</u>
<u>Statutory Wilderness</u>		
USFS (California)	28,062	1
USFS (Nevada)	6,483	1
<u>Administratively Endorsed</u>		
USFS (California)	400	1
FWS (Nevada)	341,500	1
FWS (Oregon)	15,500	1
<u>Other Study Areas</u>		
BLM (California)	188,600	7
BLM (Idaho)	726,652	31
BLM (Nevada)	1,209,606	35
BLM (Oregon)	2,027,405	66
USFS (California)	11,285	1
USFS (Idaho)	5,562	1
USFS (Nevada)	7,768	1
USFS (Oregon)	9,955	1

TABLE 8

Proximity to Reno, Nevada Population Center

	<u>Acres</u>	<u>Units</u>
<u>Statutory Wilderness</u>		
USFS (California)	1,112,812	11
NPS (California)	104,352	2
<u>Administratively Endorsed</u>		
USFS (California)	337,620	31
USFS (Nevada)	189,670	3
NPS (California)	646,000	1
NPS (Nevada)	42,000	1
FWS (Nevada)	342,240	2
<u>Other Study Areas</u>		
BLM (California)	533,991	31
BLM (Nevada)	2,210,044	41
BLM (Oregon)	142,570	3
USFS (California)	1,449,861	64
USFS (Nevada)	38,860	4

Three stream drainages, containing small private parcels of 40 acre blocks, intrude into the west boundary along these riparian zones about one mile each. The WSA contains five inholdings, the two largest of which have cherry-stem access roads to them. Two 40 acre inholdings adjoin other private lands but have no access. One 40 acre parcel in Section 23, T. 40 N., R. 45 E., is isolated within the unit with no access. This parcel is adjacent to the Humboldt River Canyon and could impact solitude in that portion of the unit if access to the property were required and some development occurred thereon. Much of the western WSA boundary resulted from private land boundaries, which are generally difficult to discern on the ground, and a meandering road which wanders back and forth from private land to public lands (see Map 4).

The WSA also contains 2 regions of moderate metallic mineral potential. Therefore, the unit contains 3 areas of manageability concern for a wilderness suitability recommendation. First, the area includes topography which is not restrictive to vehicular travel at random. Second, the WSA contains areas with difficult to discern boundaries. Third, the area contains areas of moderate mineral potential.

The Elko Resource Management Plan contains five alternatives: Alternative A is the no-wilderness alternative and is therefore, not concerned with manageability. Alternative B has suitable boundaries which deleted the areas of manageability conflict and moderate mineral potential (see Map 7). Alternatives C and E included all the WSA acreage which includes those areas of manageability concern. Alternative D has the same boundaries as Alternative B except for an additional 1389 acres on the west side where the increased management effort and the inclusion of a moderate mineral potential zone were outweighed by the presence of riparian habitat for Lahontan Cutthroat trout, a threatened species (see Map 8).

The new proposed manageable boundaries of the suitable areas under Alternatives B and D are drawn utilizing topographic features of ridgelines, drainages, and geologic features. Where these features were not available, straight line bearings between the features was employed.

Wild horse gathering would continue so that the population in the herd management area could be maintained. During gathering operations portable traps could be located on peripheral areas and the terminal end of cherry-stemmed roads. Helicopter flying over the wilderness area could be allowed during the gathering procedures. With wilderness designation, gathering operations would be subject to stipulations on page 25 of the Wilderness Management Policy.

The boundaries under Alternative B or D as proposed suitable for wilderness are both identifiable and manageable. Admittedly, some degradation of wilderness values would occur from nonconforming uses. However, the area can generally be managed to maintain its wilderness character over the long-term.

QUALITY STANDARDS

Standard No. 1: Energy and Mineral Resource Values

The following information is a synopsis of reports by the Nevada Bureau of Mines and Geology (Tingley and Quade, 1984) and Geology, Energy and Minerals (GEM) Assessment by Terradata (1983), the Elko Area Mineral Resource Inventory (Bentz and Tingley, 1983) staff field work (Brooks, 1983) and references as cited in the text. Map 7 depicts areas of GEM favorability. The mineral favorability classification system is explained and favorability for the various GEM Resources listed in Table 9.

GEOLOGY

The Little Humboldt River WSA is located in western Elko County north of the small community of Midas. The WSA is entirely underlain by Tertiary volcanics. The geology and ore deposits of the Gold Circle Mining District are well described by Rott, 1930. The Gold Circle District encompasses the southern portion of the WSA and many rock units underlying the WSA also occur in the mining district.

Volcanic activity in Nevada is categorized by two periods of volcanism and basically consists of volcanism between 43 and 17 million years ago (m.y.) and 17 to 6 m. y. (Stewart, 1980). Mineralization in the vicinity of the WSA occurs in the older volcanics while the younger volcanics are barren.

Three rock types have been identified in the older volcanics and are pre-andesite rhyolite, andesites and post-andesite rhyolite. All these rock types are altered, mineralized, faulted, and intruded by dikes (Rott, 1930).

The older volcanic group is unconformably overlain by unaltered and unmineralized rhyolite welded tuff (Cougar Point Tuff) dated at 12.2 m.y. (Stewart, 1980). Also occurring in the WSA are younger volcanics chiefly consisting of rhyolite flows and domes with subordinate amounts of tuffaceous siltstone and sandstone, conglomerate, and limestone. Basalt crops out in the northeast portion of the WSA.

GEOLOGY, ENERGY, AND MINERALS (GEM) RESOURCES

Locatable

As of March 1985 portions of three post FLPMA lode claims are located along the southern boundary of the WSA (Map 7). These claims are in an area of altered volcanics which is designated M1-3C on Map 7. No development has occurred on these claims within the WSA, however, a few trenches have been dozed in just outside the WSA. Rocks from area M1-3C are in some places altered, brecciated, silicified, and iron stained. The most distinctive feature is the alteration which bleaches the rocks white. Eleven samples were taken in area M1-3C and analyzed for gold and silver. Low but anomalous amounts of silver were detected in most samples (Brooks, 1983). No gold was detected. Based on alteration and known mineral occurrences, area M1-3C is rated moderately favorable for gold and silver. The only evidence of mineral development in the WSA consists of a few prospect pits in areas M1-3C and M2-3C.

Area M2-3C (Map 7) is rated moderately favorable for precious metals. Stream sediment samples by Tingley and Quade (1984) delineated a broad zone of correlative geochemical anomalies for barium, tin, copper, lead, zinc, and arsenic.

Area M3-2B (Map 7) has low favorability based on low, but geochemical anomalous values for tin, zinc, and barium in stream sediment samples.

The remainder of the WSA, area M4-1B, is rated as unfavorable for locatable minerals.

TABLE 9
Mineral Favorability of the
Little Humboldt River WSA

<u>COMMODITY</u>	<u>AREA</u>	<u>CLASSIFICATION LEVEL</u>	<u>CONFIDENCE LEVEL</u>	<u>REMARKS</u>
Metals	M1-3C	3	C	Au, Ag
	M1-2C	2	B	Au, Ag
	M4-1B	1	B	
Geothermal	Entire WSA	1	B	
Uranium/Thorium	Entire WSA	1	A	
Coal	Entire WSA	2	B	
Oil and Gas	Entire WSA	2	B	
Tar Sands/ Oil Shale	Entire WSA	1	C	
Limestone	Entire WSA	2	C	
Bentonite	Entire WSA	2	C	
Diatomite	Entire WSA	1	B	
Clinoptilolite	Entire WSA	1	A	
Barite	M1, M2, M3	2	B	
Turquoise	M4	1	B	
	Entire WSA	2	A	
Perlite	Entire WSA	1	B	
Phosphate	Entire WSA	2	A	
Paleontology	Entire WSA	1	B	

LEGEND: Favorability of the Geologic Environment to Contain GEM Resources

Class 1 - Unfavorable
Class 2 - Low Favorability
Class 3 - Moderate Favorability
Class 4 - High Favorability

Confidence Level A - Insufficient data or no direct evidence.
Confidence Level B - Indirect evidence available.
Confidence Level C - Direct evidence but quantitatively minimal.
Confidence Level D - Abundant direct and indirect evidence.

Leasable

Oil and Gas

There are no leases in the WSA. The WSA is estimated as having a low favorability for oil and gas (2B) with a low level of confidence. Sandberg (1983) rates the WSA as having low oil and gas potential, however, little data specific to the WSA is presented. Exxon Company conducted widespread seismic, gravity, and magnetic surveys during 1984 on the Owyhee Desert to within a few miles northeast of the WSA. Exxon has rated the area as having low favorability based on rather sketchy data (personal communication, Blackgoat, 1983).

Geothermal

The WSA contains no geothermal features or requisite geologic criteria in the area which would indicate favorability for geothermal resources. The WSA is rated unfavorable (1B) for geothermal resources (Terradata, 1983).

The WSA is rated as having low favorability or is unfavorable for other GEM Resources.

CONCLUSIONS

1. There are portions of 3 post-FLPMA mining claims in the WSA.
2. Two areas comprising about 17% of the WSA are moderately favorable for precious metals. The remainder of the WSA has low favorability or is unfavorable for all GEM Resources.
3. There are no oil and gas leases in the WSA and the WSA has low favorability for oil and gas.

Standard No. 2: Impacts on Other Resources (including Wilderness) by Alternative

The impacts will be the same for Alternatives C and E of the Elko Resource Management Plan. Alternatives B and D will have identical impacts except for the 1,389 acre addition to the suitable portion contained in Alternative D. This alternative will be analyzed separately where different.

Wilderness

Under Alternatives C and E the wilderness resource would receive maximum protection which would ensure that the wilderness integrity of most of the area would be maintained. It would not, however, prevent some adverse impacts on 13,827 acres that are expected to lose wilderness character over time.

Under Alternatives B and D, 67 and 71 percent respectively, of the unit would be protected from various impacts associated with development and mechanized use. This would thus include the better quality areas, the mandatory wilderness characteristics, and special features, and would be manageable (see Criterion No. 2. Manageability) over the long-term.

Under Alternative D, the additional 1,389 acres would require increased management to delineate and protect this boundary in the long-term. This additional area, however, would provide scientific values for the study of the Lahontan Cutthroat trout in a natural habitat under wilderness management which would be foregone under the other alternatives. The additional management actions and slight impacts to minerals would far be outweighed by the additional wilderness benefits which would be gained.

Minerals

With wilderness designation, the area would be segregated from all forms of mineral entry, with the exception of valid existing rights. This would preclude drilling within the area and the potential discovery and development of mineral resources would be foregone.

The significance of this impact to minerals varies by alternative from none to significant. Under Alternative B, the area recommended as suitable for wilderness designation has low potential for all mineral resources and therefore no adverse impact would occur. In Alternatives C and E, the area recommended as suitable contains 6,600 acres in the southern and western areas of the WSA with moderate potential for precious metals, which if designated would result in a significant adverse impact to minerals. The areas identified as suitable for wilderness under Alternative D would include 1,400 acres with moderate potential for precious metals. Due to the small size of this area of moderate mineral potential it is unlikely it contains economically significant mineralization, therefore, the impact to minerals is adverse under this alternative but not significant.

Range

There are 36,593 acres, or 87%, of the WSA within the Bullhead Allotment and 5,620 acres or 13% of the WSA located within the Little Humboldt Allotment. The Little Humboldt River WSA comprises 25% of the Bullhead Allotment's 145,016 acres of public land and 3,013 of the total 12,050 AUMs. The Little Humboldt Allotment has 10% of the 58,521 public acres and 766 or 20% of the AUMs within the WSA.

The Bullhead Allotment in Alternatives B and D would be impacted by the loss of a few miles of ways which have been used for vehicles in the past, but would be closed with wilderness designation. However, much of the unit is too rugged for cross country vehicle travel. Desirable range improvement projects consisting of small pit reservoirs, the Rimrock and Castle Ridge reservoirs in the northeast corner of the area, would not be built or would be relocated outside the boundary of the area if designated wilderness.

There are very limited opportunities to increase forage for cattle grazing within the suitable areas of Alternative B and D due to rugged terrain, soil limitations, and current allocations of use.

The additional suitable 1,389 acres contained in Alternative D over Alternative B, are situated entirely within the Bullhead Allotment. This acreage contains no existing improvements which would result in increased grazing costs to use or maintain.

Existing pit reservoirs for grazing are contained in cherry-stems under Alternative C and E and would be in the portions unsuitable for wilderness under Alternatives B and D. As cherry-stems, they would be constrained for expansion, but not otherwise affected by wilderness designation.

Fences consist of one mile of existing fence plus additional 15 to 20 miles of fencing being constructed now under IMP guidelines for resource management. These new fence segments would be evaluated again after wilderness designation for their continued need and compatibility. The fences are being constructed by nonmechanized means and could therefore, be maintained in the same manner without substantial cost impacts.

Forestry

An aspen community is localized along approximately 11.7 miles of stream. This community has little economic value due to the small quantities and remote location of the trees. Therefore, no adverse impacts to woodland product harvest would occur from designation.

Wildlife

Enhancement projects such as browse and/or forb plantings and stream bank structures could be constrained.

Lands

There are three inholdings which would or could require future access with wilderness designation under Alternative C and E. Under Alternatives B and D there would be only one inholding within the suitable area. Although reasonable access to these lands is guaranteed, a private land owner wishing to develop his land may experience some delay in his plans while the Bureau assesses the various means of access and works with him to determine the most appropriate route or method of entry to the property.

Recreation

While the WSA has light recreational use due to its poor access and remoteness, most historic recreation use has been vehicle related. Designation would significantly impact vehicle related recreational activities by restricting motorized access to the cherry-stem roads. This would result in some loss of user days and concentration of the remaining users on those roads.

Cultural Resources

Refer to Quality Standard No. 2, B. 3 on page 7.

Standard No. 3: Impacts of Nondesignation on Wilderness Values (and other resources) by Alternatives A, B and D.

Under Alternative A none of the WSA would be recommended as suitable for wilderness designation. This analysis will include discussion of the recommended unsuitable areas under Alternatives B and D.

No other new designations are anticipated for these areas. Developments would be constrained to some extent by the presence of T and E species of Lahontan Cutthroat trout and the required management action to protect this habitat.

Wilderness

It is speculative that over the long-term, range improvement developments, oil and gas exploration, mineral exploration activities, and ORV use are anticipated in combination to destroy the naturalness over most of the area, except for the rugged canyons. The loss of naturalness will substantially impact primitive recreation opportunities available in a natural setting except for about 15,000 acres of canyons and creek drainages.

Solitude would be lost in over half of the WSA over the long-term and during the short-term when seismic exploration operations were active, the opportunity to experience solitude would be restricted to the deeper portions of the canyons.

While the special geologic features would probably not be impacted over the long-term due to their ruggedness, the opportunity to view these in a natural setting would be expected to be lost over the long-term.

Minerals

While it is not anticipated that mineralization would extend beyond the two zones of moderate potential (see Map 7), exploration activities could be conducted within the entire WSA, a beneficial impact to minerals.

Seismic exploration would be expected over the northern half of the WSA to establish the southern boundaries of the formation just north of the WSA.

Range

Due to the large size of the Bullhead Allotment it is anticipated that range pasture fences would eventually be constructed. Water improvements for distribution of livestock and seedings and brush treatments to increase carrying capacity would eventually be constructed on the nondesignated areas.

Wildlife

An indirect adverse effect of these alternatives is that wildlife habitat would not be afforded the long-term resource protection provided by wilderness designation. Under Alternative A, the T&E species of trout and its habitat would continue to be protected. However, its possible that this status may change and the law not continue to be protective of the Lahontan Cutthroat trout. Nesting raptors and disturbance sensitive big game animals would be more disturbed and stressed by mechanized activities without wilderness designation.

The 1,389 acre area which would be protected under Alternative D, would not be afforded wilderness protection under Alternative B. This area contains important habitat for the Lahontan Cutthroat trout, aspen and cliff nesting raptors, mule deer and the proposed reintroduction of California bighorn sheep.

Recreation

Motorized recreationists can in time be expected to extend existing roads and ways or add new ones in pursuit of hunting and fishing activities. A proposed guiding service for this area by the Midas Bar and Pack Station would forego the enhancement of its commercial recreation which wilderness designation would provide.

Cultural Resources

Management and protection of cultural resources would continue to be guided by all applicable laws affecting these resources. An indirect adverse effect of these alternatives is that cultural resources would not be afforded the long-term resource protection provided by wilderness designation.

A beneficial impact would be the ability to use motorized equipment such as generators and air compressors for excavation activities should this become necessary, thereby lessening research costs.

Wild Horses

While the wild horses could continue to be managed and opportunities to view the horses would continue, opportunities to view the wild horses in a natural setting would be reduced over time.

Standard No. 4: Public Comment

During the wilderness inventory process BLM received 12 specific comments on this unit. Several noted intrusions and lack of outstanding opportunities. Most comments discussed the presence of outstanding solitude and recreation.

Many noted supplemental and other resource values. Also received were 2,327 general comments stating the unit meets the wilderness criteria.

Two comments expressing concern for wilderness designation in general were received during the Elko Area RMP issue identification process. One expressed concern for withdrawal of these areas from mineral entry and development. The other felt that taking these areas "out of production" will hamper America's greatness.

Standard No. 5: Local Social and Economic Effects

The Little Humboldt WSA is utilized by two individuals for livestock grazing. Even though a very small percentage of their businesses are based economically on the lands within the WSA, the social aspect of the ranching way of life is very important to these ranchers and Elko County as a whole. Wilderness designation will not preclude ranching but it could introduce increased costs of operation because of increased distances which must be traveled by foot or horseback to manage livestock and maintain range improvements.

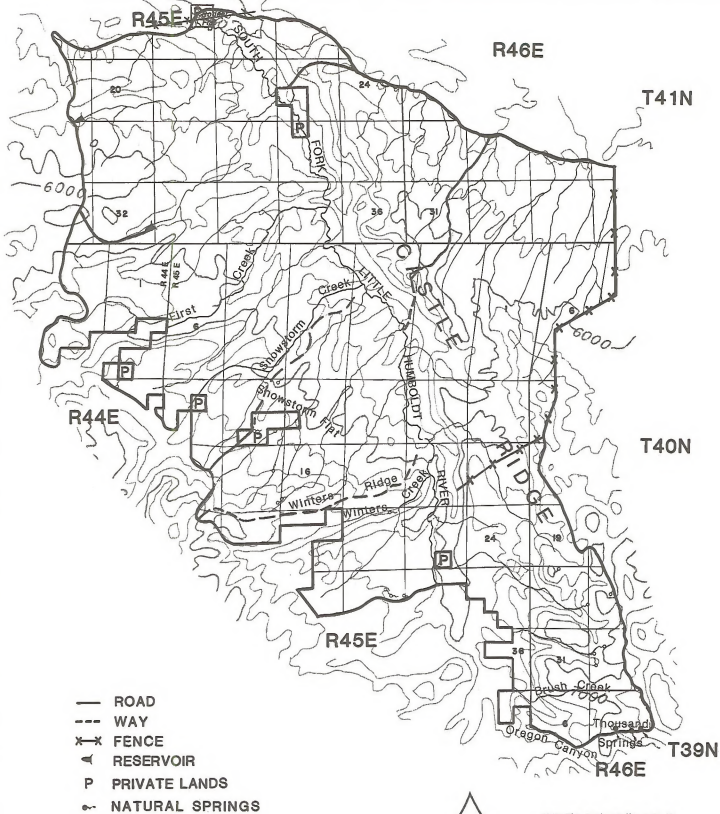
The opportunity for an individual or a company to prospect, locate minerals, and/or explore for oil and gas is also held in great regard by the residents of Elko County. Therefore, many people philosophically disagree with wilderness designation because it would preclude such actions.

The local economy is based to a large degree on mining of hard rock minerals, especially gold. The discovery of precious metals or other minerals, however remote the possibility, with economic value in the WSA would have a significant beneficial economic impact upon the county. However, such an impact, and conversely the loss of such a discovery through wilderness designation, is merely a potential impact at this time.

Any increase in recreation visitor days with designation will result in an insignificant increase of a few thousand dollars to the county. Some potential for professional guiding and outfitting might result in one or two jobs. This would also be insignificant, overall to the county.

Standard No. 6: Consistency with Other Plans

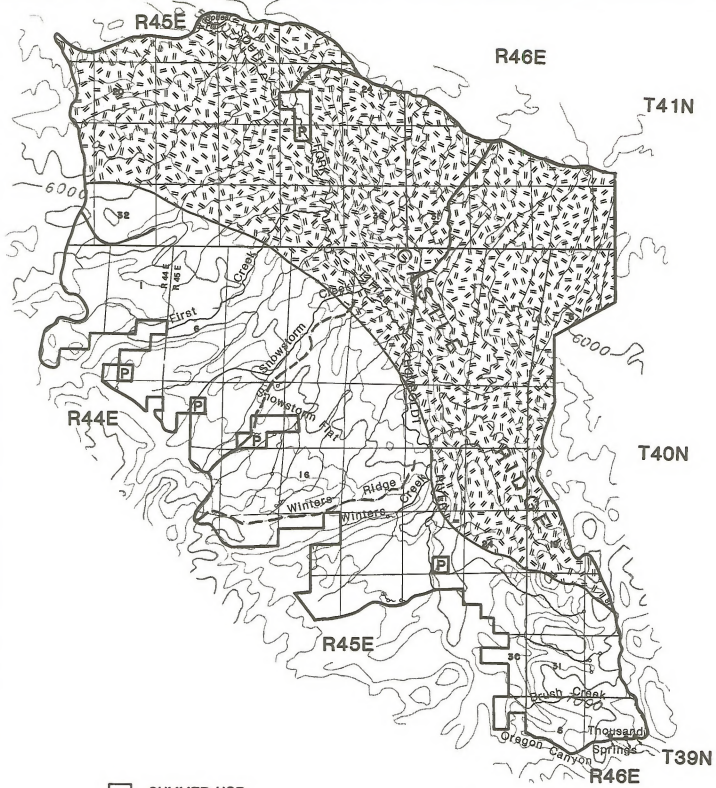
Refer to Quality Standard No. 6 on page 14.



EXISTING SITUATION

LITTLE HUMBOLDT RIVER NV-010-132

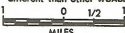
MAP 4



-  SUMMER USE
-  YEAR ROUND USE

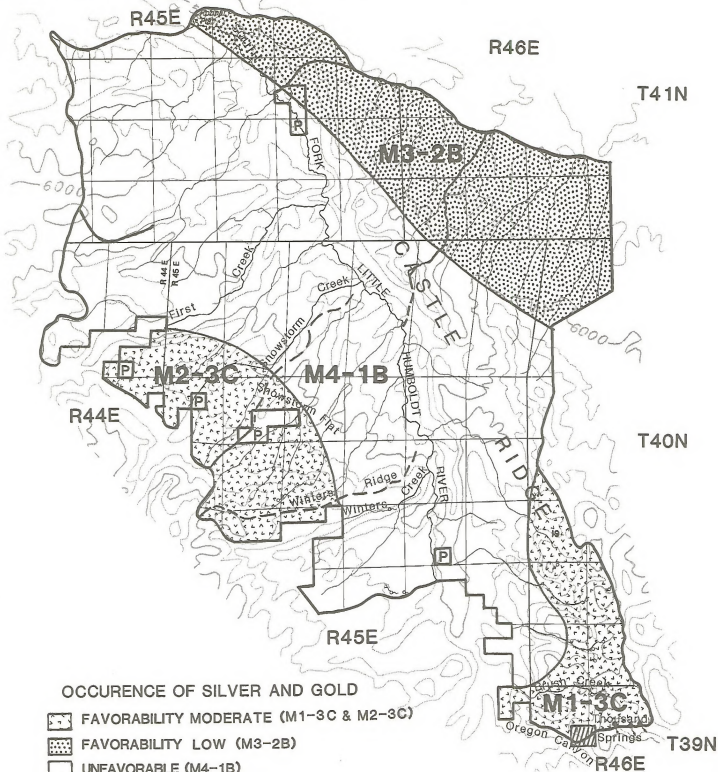


Note: The scale on this map is different than other WSAS.

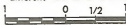


MILES

WILD HORSE RANGE
LITTLE HUMBOLDT RIVER NV-010-132
MAP 5

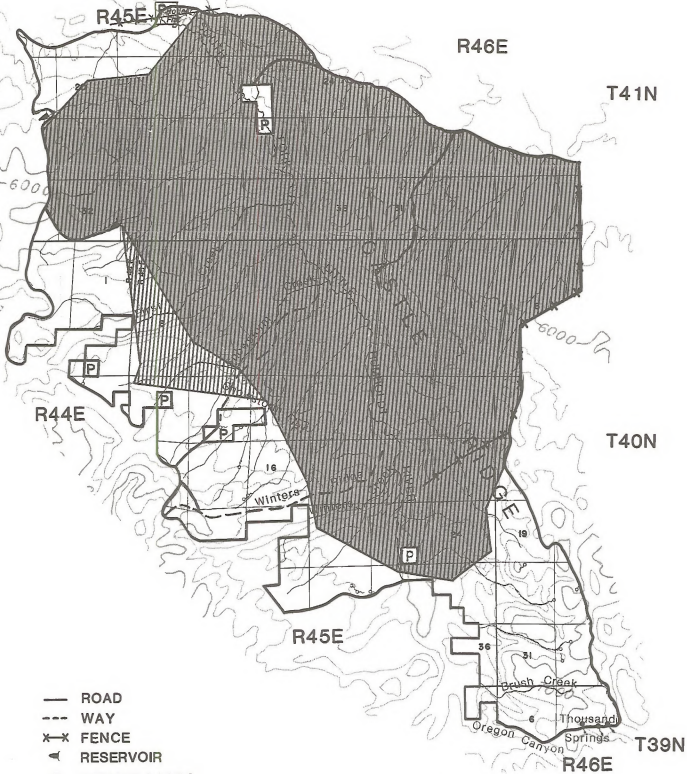


Note: The scale on this map is different than other WSAS.



MILES

MINERAL POTENTIAL
LITTLE HUMBOLDT RIVER NV-010-132
MAP 7

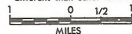


- ROAD
- - - WAY
- X X FENCE
- A RESERVOIR
- P PRIVATE LANDS
- ↑ NATURAL SPRINGS

ALTERNATIVE	SUITABLE
A	NONE
B	
C	ALL
D	
E	ALL



Note: The scale on this map is different than other WSAS.



**WILDERNESS STUDY AREA
LITTLE HUMBOLDT RIVER NV-010-132**

CEDAR RIDGE WSA (NV-010-088)

The Cedar Ridge Wilderness Study Area lies approximately 23 air miles south of Elko, Nevada. The unit contains 10,009 acres in a blocked configuration $4\frac{1}{2}$ miles by 4 miles. The highest point within the unit is Hilton Peak on the north boundary at 7,151 feet. The lowest elevation is 5600 feet on the flats along the eastern boundary.

The dominant topographic feature of the unit is the single north-south ridgeline. The west side of the ridge has a short uptilted remnant bench, which is deeply dissected. The east side of the ridge is severely eroded and gullied.

TABLE 10

	ALTERNATIVE				
	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>
Suitable Acres	0	0	10,009	0	10,009
Nonsuitable Acres	10,009	10,009	0	10,009	0
% WSA Suitable	0	0	100	0	100
% WSA Nonsuitable	100	100	0	100	0
% R.A. Suitable	0	0	.003	0	.003

Criterion No. 1: Evaluation of Wilderness Values

Wilderness values i.e. naturalness, outstanding opportunities for solitude or primitive and unconfined recreation, special features, multiple resource benefits, and diversity in the National Wilderness Preservation System would be enhanced with designation of the 10,009 acre area under Alternatives C and E.

Component No. 1: Quality of the Area's Mandatory Wilderness Characteristics

A. Naturalness

The area generally appears natural in many areas. There are no roads or cherry-stems within the unit. There are substantial man-made range improvements consisting of 3 fences within the unit. A 3 mile fence segment is located along the crest of the ridge. While this segment is not of bladed construction it is difficult to escape within the unit. The second fence is a bladed 1 mile segment. The fence originates at the southwest boundary of the unit and traverses a heavily treed ridge in a northeast line to the southern terminus of the main ridge fence. The bladed construction of this fence involved clear cutting of trees and extensive soil disturbance. The fence is very unnatural in appearance and has poor prospects for rehabilitation to a natural state due to disturbed unproductive soils, erosion, and the slow growth rate of the juniper trees. The third fence segment originates at the junction of the first two and runs $2\frac{1}{2}$ miles due east. This fence is also of bladed construction, with the line cut through the trees. Rehabilitation potential would be very low as jeep trails parallel much of this segment.

The three fences divide the unit into 3 segments comprising 29% of the acreage west of the ridge, 48% east of the ridge, and 23% in the southern portion. The larger portion contains an old burn area with remnant fire breaks visible in many areas. The most eastern part contains the Hansel Well with corrals and water trough.

The WSA contains 2 pit reservoirs. The first reservoir is just inside the west boundary in the southwest corner. The second reservoir is located along a dry drainage in the southeast corner of the unit.

The unit contains three ways totalling about 5 miles. The WSA also contains extensive evidence of stumps and faint tracks from historical wood harvesting.

The imprints of man's work are subtle and possible to escape in much of the area but are not entirely escapable over the area in general. While the area meets the naturalness criteria, rehabilitation efforts and time will be required before the degree of naturalness improves overall.

B. Outstanding Opportunities for Solitude or Primitive and Unconfined Recreation

1. Solitude

The area provides marginally outstanding opportunities for solitude in the west side bench and deeply dissected draws due to topographic screening and vegetative screening provided by dense Utah juniper. The east side juniper stands on the flats offer good solitude with dense vegetative screening but lack any topographic relief. The single narrow configuration of the ridge provides limited solitude with little avoidance of other users in general. However, there are outstanding opportunities for solitude within isolated areas of the unit.

2. Primitive and Unconfined Recreation

Primitive recreational activities available include hiking, backpacking, camping, hunting, horseback riding, and wildlife observation. The lack of water and lack of diversity of recreational areas limit the attractiveness and potential for outstanding recreational opportunities within the WSA.

Hiking: The unit lacks any challenging hiking terrain. The WSA would be explored by the average hiker in a day's time. To fully explore the whole unit might require 2 days, although the inclination to do so would be very low.

Camping: While there are ample areas to camp which would provide solitude, the lack of any water and short day hikes would not present any outstanding opportunities or commanding reasons for camping.

Low populations and varieties of animals provide very limited opportunities for hunting or for wildlife observation. Horseback riding opportunities are fair to very good although not very challenging nor attractive due to the lack of water. Access is very good from almost any point around the unit.

This diversity of opportunities for recreation is not unusual, perhaps even less than nearby areas, certainly not outstanding.

Component No. 2: Special Features - Quality of the Area's Optional Wilderness Characteristics

The unit has good quality vistas, small populations of deer and predators, and some picturesque twisted burned juniper trees and stumps. The WSA is a good example of an isolated Great Basin juniper woodland. These features all contribute to the area but fail to enhance its suitability as wilderness.

Only 0.5% of the study area has been archaeologically surveyed. Most of the sites identified in the vicinity of the study unit are of the open aboriginal type consisting of stone tools and waste flakes. There is evidence of prehistoric occupation during the archaic period, 2500 to 5000 years ago. Further survey will probably yield evidence of later occupation as this was indicated in Julian Steward's 1938 monograph titled Basin-Plateau Aboriginal Sociopolitical Groups. According to Steward the area was favored because of access to fishing in the Humboldt River and pine nuts on the western slopes of the Ruby Mountains. Steward also mentions an antelope corral in the mountains west of Jiggs.

On the average, an archaeological site is found on every 60 acres surveyed in the Elko District. About 130 archaeological sites should be within an area the size of the study unit. These sites may be divided into three categories: 1) Open aboriginal 2) Caves and Rock Shelters and 3) Euro-American Historic. The number and type of archaeological sites within a given area is highly variable depending on available resources, geography, and cultural affinities involved. Hence, the accuracy of site estimates is directly related to the quantity and quality of survey data available for a particular area. Site type estimates are as follows:

1) Open Aboriginal	115
2) Caves and Rock Shelters	5
3) Euro-American Historic	10

Component No. 3: Multiple Resource Benefits: The Benefits to Other Multiple Resource Values and Uses Which Wilderness Designation of the Area Could Ensure

A. Values That Already Exist:

Wilderness designation would ensure that the existing naturalness, and outstanding opportunities for solitude would be maintained or enhanced over time.

Wilderness designation generally would protect the archaeological resources in the WSA. Because of restricted vehicular access the vandalism of sites would be reduced. Archaeological sites would therefore, retain their integrity for a longer period of time.

The WSA supports a few deer yearlong. The presence of deer browse and the thermal cover provided by the abundance of juniper contribute to this deer winter range. Dense stands of big sagebrush also provide valuable winter cover for sage grouse. However, no known strutting grounds or wet meadows which are critical for summer brood rearing occur within the WSA. The WSA also provides excellent nesting habitat for sensitive Swainson and Ferruginous Hawks, while golden eagles and other raptors are common in the vicinity.

In general, wildlife habitat would be protected by wilderness designation because developments destructive to habitat would not occur and closure to vehicle use would prevent wildlife harassment. Migrating raptors would also be protected by wilderness designation because of restricted development.

Developments such as powerlines, roads, and gravel pits would not be allowed within a designated wilderness area, thereby, protecting scenic quality.

B. Benefits to Areas Outside the Wilderness Study Area

Visual resources as seen from outside the WSA would be preserved with wilderness designation.

Component No. 4: Diversity in the National Wilderness Preservation System

Factor No. 1: Expanding the diversity of natural systems and features, as represented by ecosystems and landforms

Cedar Ridge is an Intermountain Sagebrush, Juniper-Pinyon Woodland ecosystem; 3130-21. Table 11 displays how this ecosystem is currently and potentially represented in the National Wilderness Preservation System.

Factor No. 2: Assessing the opportunities for solitude or primitive recreation within a day's driving time (five hours) of major population centers.

Cedar Ridge WSA is within a day's driving time of the Salt Lake City, Utah Standard Metropolitan Statistical Area (SMSA). Table 12 displays the existing wilderness, administratively endorsed, and other study areas within five hours of Salt Lake City.

TABLE 11

Intermountain Sagebrush, Juniper-Pinyon Woodland
Ecosystem 3130-21

	<u>Acres</u>	<u>Units</u>
<u>Statutory Wilderness</u>		
USFS (California)	43,168	3
<u>Administratively Endorsed</u>		
USFS (California)	52,640	4
USFS (Nevada)	60,000	1
USFS (Utah)	17,530	1
NPS (Nevada)	35,000	1
<u>Other Study Areas</u>		
BLM (California)	321,361	17
BLM (Nevada)	1,635,078	44
BLM (Utah)	229,907	12
USFS (California)	420,784	11
USFS (Nevada)	145,034	8

TABLE 12

Proximity to Salt Lake City, Utah Population Center

	<u>Acres</u>	<u>Units</u>
<u>Statutory Wilderness</u>		
USFS (Nevada)	64,830	1
USFS (Utah)	30,088	1
USFS (Wyoming)	583,272	2
NPS (Idaho)	43,243	1
<u>Administratively Endorsed</u>		
USFS (Idaho)	15,770	1
USFS (Utah)	625,712	12
NPS (Colorado)	205,671	1
NPS (Utah)	592,640	5
NPS (Wyoming)	91,105	1
<u>Other Study Areas</u>		
BLM (Colorado)	114,687	9
BLM (Idaho)	11,298	1
BLM (Nevada)	229,074	7
BLM (Utah)	1,133,523	24
BLM (Wyoming)	116,702	7
USFS (Idaho)	28,800	1
USFS (Nevada)	245,374	4
USFS (Utah)	110,286	5
NPS (Wyoming)	45,552	1

Factor No. 3: Balancing the geographic distribution of wilderness areas.

Refer to Factor No. 3 page 6.

Criterion No. 2: Manageability:

The suitable boundary of Alternatives C and E has a uniform configuration with boundaries well delineated by roads on all sides except for 1 mile on the northeast corner which could be marked with signs. The unit contains neither private inholdings nor cherry-stem roads.

Wood harvesting in the unit is a long-term historical use. Manageability problems stem from the close proximity of the unit to the population of Elko combined with good access to the WSA. As one of the 3 major public woodland tracts closest to Elko, the WSA would be extremely difficult to manage as wilderness over the long-term.

QUALITY STANDARDS

Standard No. 1: Energy and Mineral Resource Values

The following information is a synopsis of reports by the Nevada Bureau of Mines and Geology (Quade and Tingley, 1984) the Geology, Energy, and Minerals (GEM) Assessment by Terradata (1983), Elko Area Mineral Resource Inventory (Tingley and Bentz, 1983) and publications as cited in the text.

GEOLOGY

Map 10 depicts areas of GEM favorability. The mineral favorability classification system is explained and favorability for GEM Resources shown in Table 13. The dominant physiographic feature is a north-trending ridge of Paleozoic limestone. The limestone forms an anticline, the limbs of which dip moderately to the east and west. The WSA is within the block-faulted basin and range province, however, no major faults are indicated on geologic maps of the area by Smith and Ketner (1975).

Stratigraphy is summarized from Smith and Ketner (1975 and 1976) as follows:

Quaternary Alluvium - silt through boulder size material along drainages.

Quaternary Gravels - older alluvium consisting of clay through boulder size material on benches. Thickness ranges up to 300 feet.

Plio-Pleistocene Hay Ranch Formation - typical basin-fill deposits which west of Cedar Ridge consist of conglomerate, sandstone and siltstone derived from Paleozoic limestones. Thickness is about 600 feet in the vicinity of the WSA.

Upper Pennsylvania and Permian Rocks - thin bedded calcareous siltstone and sandstone that weathers to form tan platy fragments littering slopes. Occasional ledge forming cherty limestone. Thickness is about 3000 feet.

Pennsylvania Moleen Formation - ledge and slope forming detrital limestone with some silty, sandy, or cherty beds and occasional chert pebble conglomerate lenses. Frequently fossiliferous. Thickness about 1225 feet.

Mississippian Diamond Peak - chert and quartzite pebble conglomerate and sandstone. Thickness is about 1000 feet.

TABLE 13
Mineral Favorability of the
Cedar Ridge WSA

COMMODITY	CLASSIFICATION	CONFIDENCE	REMARKS
	LEVEL	LEVEL	
Metals/Non-Metals	3	C	Area M1-3C, Map 9
Metals/Non-Metals	2	C	Rest of WSA
Geothermal	1	D	
Uranium/Thorium	3	B	Area U1-3B
	1	B	Rest of WSA
Coal	1	C	
Oil and Gas	4	C	
Tar Sands/Oil Shale	2	B	
Limestone	4	D	
Bentonite	2	C	
Diatomite	1	B	
Zeolites	2	C	
Barite	3	C	Area M1-3C
	2	C	Rest of WSA
Turquoise	1	B	
Perlite	1	C	
Phosphate	1	C	
Paleontology	3	D	
Sand & Gravel	4	D	

LEGEND: Favorability of the Geologic Environment to Contain GEM Resources
 Class 1 - Unfavorable
 Class 2 - Low Favorability
 Class 3 - Moderate Favorability
 Class 4 - High Favorability

Confidence Level A - Insufficient data or no direct evidence
 Confidence Level B - Indirect evidence available
 Confidence Level C - Direct evidence but quantitatively minimal
 Confidence Level D - Abundant direct and indirect evidence

GEOLOGY, ENERGY AND MINERAL (GEM) RESOURCES

Locatable

As of March 1985 there are portions of 6 mining claims in the southwest corner of the WSA. The claims are post-FLPMA and were located by Cominco American in September, 1983, apparently for precious metals. No activities requiring a 43 CFR 3802 plan-of-operations have occurred on the claims to date.

Stream sediment concentrate samples (Quade and Tingley, 1984) show geochemically anomalous concentrations of barium and occasionally silver in areas draining from Paleozoic limestone terrains within the WSA. Whole rock samples from areas of Paleozoic limestone, although rather few, show anomalous concentrations of arsenic, antimony, and mercury which are good indicators of potential precious metal mineralization. The WSA is also along the most significant gold trend (in terms of production) in the U.S. Area M1-3C is classified as moderately favorable (3C) for precious metals mineralization and barite (Map 10).

Area U1-3B (Map 10) is underlain by rock similar to the host rock containing uranium mineralization as described in the Red Spring WSA (page 72), however, increased distance from mineralized areas along with dissimilar ages of host rock and veneers of Quaternary gravels reduce the level of confidence rating.

The WSA has low favorability or is unfavorable for other locatable minerals (Table 13).

Leasable

Oil and Gas

The WSA is rated as having high favorability (4C) for oil and gas. Noncommercial oil and gas discoveries have been reported in Tertiary strata near Jiggs, Nevada about 6 miles southwest of the WSA. A dry hole was drilled by Texaco in 1981 about 10 miles north of the WSA. This wildcat did not test the Paleozoic section which is producing in Pine Valley 25 miles southwest of the WSA. More recently (1984) Arco submitted an Application for Permit to Drill (APD) an exploration well through both the Tertiary and Paleozoic strata 3 miles northwest of the WSA. Seismic oil and gas exploration was very active near the WSA during 1983 and 1984. The entire WSA was leased for oil and gas in 1983. Subsequently some of the leases have terminated. Due to high industry interest in the area it is highly probable that the entire WSA would be leased if available for leasing.

Based on favorable oil maturation levels, excellent source rocks, nearby oil production and shows and a favorable structural setting, the U.S.G.S. (Sandberg, 1983) rated the WSA as a prime area for petroleum exploration with high potential. Potential source rocks include Paleozoic marine strata (Chairman Shale, Webb Formation, and Nevada Dolomite) and Eocene laucustrine oil shales of the Elko Formation.

Geothermal

The WSA contains no geothermal features or requisite geologic criteria in the area which would indicate favorability for geothermal resources. The WSA is rated unfavorable (1D) for geothermal resources. All other leasable minerals are unlikely to occur in the WSA.

PALEONTOLOGY

Upper Pennsylvanian and Permian strata contain sparse, local, very fossiliferous beds having an invertebrate fauna consisting of brachiopods, bryozoans, crinoid columnals, foraminifera, and gastropods (Smith and Ketner, 1975). The Moleen Formation contains an abundant invertebrate fauna consisting of corals, echinoderms, bryozoans, brachiopods, foraminifera, and pelecypods. The WSA is rated moderately favorable (3C) for paleontological resources.

CONCLUSIONS

1. There are portions of 6 post-FLPMA mining claims in the WSA.
2. The eastern and western flanks of the WSA are moderately favorable for uranium occurrences.
3. The central portion of the WSA is moderately favorable for precious metals and barite.
4. The WSA is highly favorable for oil and gas.

Standard No. 2: Impacts on Other Resources (including Wilderness) by Alternatives C and E (All Wilderness)

Under the Elko Resource Management Plan, the impacts for this WSA will be the same under Alternatives C and E.

Wilderness

The wilderness resource would receive maximum protection under these alternatives. Naturalness, solitude, and opportunities for primitive recreation activities would be enhanced with wilderness designation over the short-term. These qualities would degrade over the long-term as a result of nonconforming activities (see Criterion No. 2. Manageability).

Minerals

With wilderness designation the 10,009 acres would be withdrawn from mineral entry and development. This would be a significant impact to minerals. The WSA has high oil and gas potential and there is substantial industry interest in the area. Much of the WSA also has moderate potential for precious metals and/or uranium.

Range

The WSA includes portions of three allotments operated by two permittees. The Hansel Allotment (1,553 AUMs) covers 48% of the northwest portion of the WSA. The WSA constitutes 34% of the allotment. Ecologic status of the Hansel Allotment is rated as early to mid seral stage. AUMs are proportioned in all three allotments in the same percentage as the acres. The Sleeman Allotment (1,392 AUMs) covers 29% of the WSA. Ecologic status is rated as early to mid seral stage. The

Dixie Creek Allotment (1,491 AUMs) on the southern portion of the WSA covers 23% of the WSA. The WSA covers 2% of the acreage of the allotment. Ecologic status is rated as mid seral stage. The Hansel Allotment is operated under a rotational system while the other two are operated under season-long-grazing.

Grazing operations would be minimally impacted in that some operations carried-out with mechanized equipment would be required to be done by nonmotorized methods. While there are exceptions whereby previous operations can use mechanized equipment, it is not anticipated that there would be any exceptions other than major repair of the two reservoirs within the Cedar Ridge WSA. Other operations could be carried out with minimal impact by nonmechanical methods. Also, various range improvements, solely for the benefit of grazing, would not be allowed with wilderness designation.

Forestry

Cedar Ridge WSA contains 4,940 forested acres of juniper and has a forested inventory of about 50,400 standing cords of wood and a projected inventory of 197,600 total harvestable posts. Based on a reestablishment rotational basis of 200 years, Cedar Ridge could support an annual harvest of 250 cords of wood and 500 fence posts. Because of the relatively mild terrain and close proximity to Elko, in relation to other forested areas, the WSA has a high potential for being a major supply source of woodland products to Elko and could supply about 18% of the local demand for firewood, based on the average annual permit sales in 1983 and 1984.

With wilderness designation, harvest of woodland products would be prohibited. This, over a matter of time, would substantially increase the cost of fuelwood collecting for the average homeowner. For residents of Elko, distance to the next closest wood product harvesting area would more than double. Related adverse impacts would be increased illegal wood cutting activities, both within the designated wilderness area and those nearer areas of public land which could not support this activity.

Wildlife

Wilderness designation could preclude thinning of the trees to provide increased winter browse for mule deer. Development of water sources would probably be constrained with designation.

Recreation

The area has little recreational use, probably less than 72 annual user days including hunting and trapping. Most off road vehicle use occurs in association with wood harvesting activities. Recreational use would decline with designation and off-road closure. Increases in primitive recreational activities would be short-term at best.

Cultural

Refer to Quality Standard No. 2, B.3 on page 7.

Standard No 3: Impacts Of Nondesignation On Wilderness Values (and other Resources) by Alternatives A, B, and D

Wilderness

In the event of nondesignation, the wilderness characteristics would probably be substantially eliminated over most of the WSA. Anticipated motorized activities would result in loss of naturalness, solitude, and primitive recreation opportunities. Surface disturbance resulting from anticipated exploration activities by mineral and energy interests would adversely impact naturalness in the short and long-term. The extent of these motorized activities would eliminate the opportunities for solitude over most of the unit.

The impacts of tree cutting and its associated creation of vehicle ways would be very impacting to wilderness values. Chainsaw noise would impact solitude within most of the area.

Construction of range improvement pipelines and troughs from both sides to facilitate distribution of cattle would impact the naturalness of the unit in those specific areas.

Minerals

A significant beneficial impact to minerals would occur as a result of nondesignation as wilderness. Areas with high oil and gas potential and moderate potential for precious metals and uranium would be available for exploration and development.

Range

A beneficial impact would accrue to grazing management without wilderness designation as the area would be available for rangeland vegetation treatment and water developments.

Forestry

With nonsuitable wilderness designation, the WSA would be designated a greenwood cutting area. This area would be managed in addition to the surrounding area for the harvest of woodland products. The impacts of tree cutting and its associated vehicle ways would be significantly adverse to wilderness values.

Recreation

It is not anticipated that motorized recreational vehicle use would increase. Vehicle use would only increase in association with mineral and energy exploration and wood harvest activities.

Cultural Resources

Management and protection of cultural resources would continue to be guided by all the applicable laws affecting these resources. While these resources would not be afforded the added long-term additional protection provided by wilderness designation, a discovery requiring excavation work would be less expensive to conduct due to the ability to use motorized equipment such as generators and air compressors.

Wildlife

Some sensitive species would continue to be protected during critical periods, however, most wildlife habitat would not be afforded the protection of wilderness designation. This area contains no wildlife habitat improvement projects that require mechanized equipment, hence this program would not be benefited by nondesignation.

Standard No. 4: Public Comment

During the Accelerated Wilderness Inventory in 1978, BLM received 5 specific comments on this unit. Most of these letters noted intrusions and past activities that have impaired wilderness values within the inventory unit.

Standard No. 5: Local Social and Economic Effects

Designation of the unit as a wilderness area will result in continued higher costs for wood harvesting by the local population, as most other woodland areas are further removed from the population.

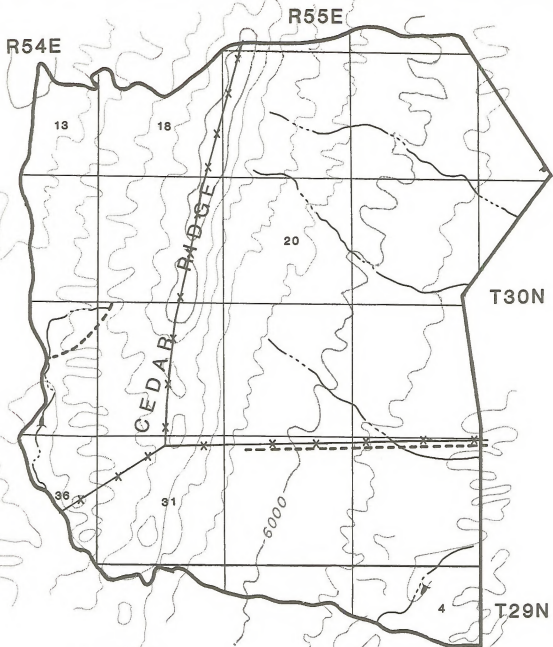
Grazing operations would be somewhat affected without the use of motorized equipment for maintenance of range facilities, although some, such as the ridgeline fence are presently maintained by horseback.

The ability to develop energy sources if discovered within the unit could be precluded, or suffer increased costs by off-site-drilling requirements.

With designation any increase in recreation visitor use will result in an insignificant increase of a few thousand dollars to the county.

Standard No. 6: Consistency with Other Plans

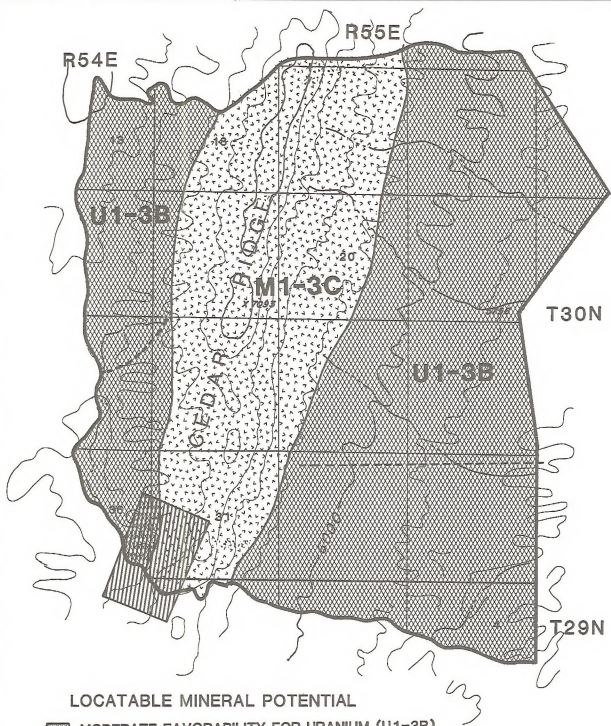
Refer to Quality Standard No. 6 on page 14.






- WAY
- x-x FENCE
- ▲ WELL
- ▲ RESERVOIR



EXISTING SITUATION
CEDAR RIDGE NV-010-088
MAP 9



LOCATABLE MINERAL POTENTIAL

-  MODERATE FAVORABILITY FOR URANIUM (U1-3B)
-  MODERATE FAVORABILITY FOR PRECIOUS METALS AND BARITE (M1-3C)
-  MINING CLAIMS POST-(FLPMA)



MINERAL POTENTIAL
CEDAR RIDGE NV-010-088

MAP 10

R54E

R55E

T30N

T29N

 FORESTED LAND



WOODLAND
CEDAR RIDGE NV-010-088
MAP 11

RED SPRING WSA (NV-010-091)

The Red Spring WSA lies approximately 20 miles south of Elko, Nevada. The unit is comprised of 7,847 acres in a very irregular shape (6 miles long on its northwest to southeast axis by 4 miles wide at its widest point on an east to west axis). The elevation varies between about 5500 feet to 6400 feet. The core of the WSA is an east tilted block of limestone. The remaining area is comprised of soft Tertiary sedimentary rocks forming rounded weathered hills and eroded drainages. The area is a dense pinyon pine-juniper woodland.

TABLE 14

ALTERNATIVE

	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>
Suitable Acres	0	0	7,847	0	7,847
Nonsuitable Acres	7,847	7,847	0	7,847	0
% WSA Suitable	0	0	100	0	100
% WSA Nonsuitable	100	100	0	100	0
% R.A. Suitable	0	0	.002	0	.002

Criterion No. 1: Evaluation of Wilderness Values

Wilderness values i.e., naturalness, outstanding opportunities for solitude or primitive and unconfined recreation, special features, multiple resource benefits, and diversity in the National Wilderness Preservation system are present to varying degrees and would be enhanced with designation of the 7,847 acres in Alternatives C and E.

Component No. 1: Quality of the Area's Mandatory Wilderness Characteristics

A. Naturalness

The area is generally natural overall, although it contains extensive evidence of woodland products harvesting. Faint tracks of vehicles which were presumably involved in woodcutting are often encountered in the relatively easily traversed terrain. Ax and saw cut stumps are extremely evident on much of the area. Stumps of at least 80 years old are relatively common.

B. Outstanding Opportunities for Solitude or Primitive and Unconfined Recreation

1. Solitude

The 7,847 acre WSA is far smaller than the majority of existing wilderness areas. With the numerous drainages, hills, and low ridges the unit offers moderately good topographic screening.

The heavily forested area offers outstanding solitude because of the vegetative screening. The area in general provides ample opportunities to find seclusion although the 2 eastern most sections and several areas along the western boundary offer almost no opportunities for solitude due to the total lack of topographic and vegetative screening (see Map 13).

2. Primitive and Unconfined Recreation

Primitive recreational activities available include hiking, backpacking, photography, camping, hunting, horseback riding, and wildlife observation.

Hiking: The unit has few areas of challenging terrain. The unit could be explored by the average hiker in less than a day's time.

Camping: The terrain and vegetation allow ample areas suitable for camping. However, the lack of water, short hiking distances, and less than outstanding attractiveness offer very limited reasons for camping.

Wildlife Observation and Hunting: The very low populations and diversity of wildlife within the study area provide less than outstanding opportunities during the fall hunting season. Recent winter observations have indicated that the WSA is providing approximately 50-75 mule deer with winter habitat.

Horseback Riding: The excellent access and easy terrain would allow for horseback riding for pleasure. The lack of water and scenic vistas, and relative shortness of trails would provide for much less than an outstanding riding experience.

Photography: The unit would provide some opportunities for photographing gnarled trees, fire remnant vegetation, geologic formations, or wildlife. However, the opportunities for photography are less than average.

The lack of: water; diversity of recreational areas; geologic formations; and diversity of vegetation, limit the attractiveness and potential for outstanding recreational opportunities within the WSA.

Component No. 2: Special Features: Quality of the Area's Optional Wilderness Characteristics

A few archaeological surveys have been conducted in the vicinity of the study unit. Only .24% of the study area proper has been surveyed. Most of the sites recorded in the vicinity are of the open aboriginal type consisting of stone tools and flakes. There is evidence of occupation during the Numic period, 200 to 700 years ago. Further evidence of this area's use comes from Julian Steward's 1938 monograph entitled Basin-Plateau Aboriginal Sociopolitical Groups. According to Steward the area was favored because of access to fishing in the Humboldt River and pine nuts on the western slopes of the Ruby Mountains.

On the average, an archaeological site is found for every 60 acres surveyed in the Elko district. About 170 archaeological sites should be within an area the size of the study unit. These sites may be divided into three categories: 1) Open aboriginal 2) Caves and Rock Shelters and 3) Euro-American Historic. The number and type of archaeological sites within a given area is highly variable depending on available resources, geography, and cultural affinities involved. Site type estimates are as follows:

Site type estimates:	
1) Open Aboriginal	150
2) Caves and Rock Shelters	10
3) Euro-American Historic	10

Component No. 3: Multiple Resource Benefits: The Benefits to Other Multiple Resource Values and Uses Which Wilderness Designation of the Area Could Ensure

A. Values That Already Exist

Wilderness designation would ensure that the outstanding opportunities for solitude are protected over time. To the extent that primitive and unconfined recreation opportunities are available, wilderness designation would also enhance and maintain these opportunities over time.

Wilderness designation generally would protect the archaeological resources in the WSA. Because of restricted vehicular access, the vandalism of sites would be reduced. Archaeological sites, therefore, would retain their integrity for a longer period of time.

The WSA supports a small band of deer year round. The thermal cover provided by the dense juniper stands is the most important value. However, deer winter browse is somewhat limited. The area provides valuable winter cover for sage grouse, however, no known strutting grounds or wet meadows, critical for summer brood bearing, occur within the WSA. Raptors, including golden eagles, are common in the vicinity of the WSA.

In general, wildlife habitat would be protected by wilderness designation because future developments would not occur and closure to vehicle use would prevent wildlife harassment. Migrating raptors including bald eagles (an endangered species) would also be protected by a wilderness designation because of restricted development.

Developments such as powerlines, roads, and gravel pits would not be allowed within a designated wilderness area, thereby, protecting scenic quality.

B. Benefits to Areas Outside the Wilderness Study Area

Maintenance of scenic values as viewed from outside the WSA and wildlife populations adjacent to the WSA would be enhanced with wilderness designation.

Component No. 4: Diversity in the National Wilderness Preservation System

Factor No. 1: Expanding the diversity of natural systems and features, as represented by ecosystems and landforms.

Red Spring WSA is an Intermountain Sagebrush, Juniper-Pinyon Woodland ecosystem; 3130-21. Table 11 on page 56, displays how this ecosystem is currently and potentially represented in the National Wilderness Preservation System.

Factor No. 2: Assessing the opportunities for solitude or primitive recreation within a day's driving time (five hours) of major population centers.

Red Spring WSA is within a day's driving time of the Salt Lake City, Utah SMSA. Table 12, page 56, displays the existing wilderness, administratively endorsed and other study areas within five hours of Salt Lake City.

Factor No. 3: Balancing the geographic distribution of wilderness areas.

Refer to Factor No. 3 on page 6.

Criterion No. 2: Manageability

The 7,847 acre WSA is very irregular in shape. The western and southern boundaries are well delineated by 9.9 miles of road. The remainder of the boundary, 10.7 miles, is formed by checkerboarded private lands along section lines. This 52% of the boundary resembles a staggered sawtooth effect when mapped and is not well delineated on the ground by fences, roads, or geographic features. The western boundary contains a long narrow finger of land bordered on either side by roads. The area contains no inholdings, cherry-stem roads, or ways.

Wood harvesting over the entire unit has been extensive. The proximity of the WSA to Elko combined with the relative ease of overland vehicle travel and excellent access to the unit from several directions, constitute major management problems in preserving the area's wilderness characteristics. Therefore, it would be extremely difficult to manage the area as wilderness over the long-term under Alternatives C and E.

QUALITY STANDARDS

Standard No. 1: Energy and Mineral Resource Values

The following information is a synopsis of reports by the Nevada Bureau of Mines and Geology (Quade and Tingley, 1984) the Geology, Energy, and Minerals (GEM) Assessment by Terradata (1983), Elko Area Mineral Resource Inventory and publications as cited in the text. In Table 15 favorability for the various GEM resources are shown. The mineral favorability classification system is explained in Table 15. Map 13 depicts areas of GEM favorability.

TABLE 15
Mineral Favorability of the
Red Spring WSA

<u>COMMODITY</u>	<u>CLASSIFICATION</u>	<u>CONFIDENCE</u>	<u>REMARKS</u>
	<u>LEVEL</u>	<u>LEVEL</u>	
Metals/Non-Metals	2	C	
Geothermal Metals	1	D	
Uranium/Thorium	3	C	Area U1-3C
	1	B	Rest of WSA
Coal	1	C	
Oil and Gas	4	C	
Tar Sands/Oil Shale	2	B	
Limestone	4	C	Economic factors would reduce classification considerably.
Bentonite	2	C	
Diatomite	1	B	
Zeolites	2	C	
Barite	3	C	
Turquoise	1	B	
Perlite	1	C	
Phosphate	1	C	
Paleontology	3	C	
Sand & Gravel	4	C	Economic factors would reduce classification considerably.

LEGEND: Favorability of the Geologic Environment to Contain GEM Resources

Class 1 - Unfavorable
Class 2 - Low Favorability
Class 3 - Moderate Favorability
Class 4 - High Favorability

Confidence Level A - Insufficient data or no direct evidence
Confidence Level B - Indirect evidence available
Confidence Level C - Direct evidence but quantitatively minimal
Confidence Level D - Abundant direct and indirect evidence

GEOLOGY

The dominant physiographic feature is a north-trending low rounded ridge of Miocene Humboldt Formation sedimentary strata and Permian limestone. The strata generally dip moderately to the east. The major structural feature is a high angle normal fault trending north-south in the north central portion of the WSA.

Stratigraphy is summarized from Smith and Ketner (1975 and 1976) as follows:

Quaternary Alluvium - silt through boulder size material along drainages.

Quaternary Gravels - older alluvium consisting of clay through boulder size material on benches. Thickness ranges up to 300 feet.

Miocene Humboldt Formation - as restricted by Smith and Ketner (1975) to upper Miocene strata of fluvial and lacustrine origin consisting of ash and tuff, conglomerate, sandstone, siltstone and claystone, and thin beds of limestone. Thickness is about 1750 feet.

Eocene Elko Formation - claystone, siltstone, and shale including paper-thin carbonaceous shale and oil shale, some limestone and tuff. Thickness is about 2000 feet.

Eocene Limestone - dense and sugary, grey to light tan, thick bedded limestone. Thickness is between 1000 feet and 2000 feet.

Eocene Conglomerate, Sandstone, Siltstone, and Limestone - a unit of varied lithology with a characteristic red weathered surface or red soil on it. Thickness is about 565 feet.

Upper Pennsylvania and Permian Rocks - thin bedded calcareous siltstone and sandstone that weathers to form tan platy fragments littering the slopes. Occasional ledge forming cherty limestone. Thickness is about 3000 feet.

GEOLOGY, ENERGY, AND MINERAL (GEM) RESOURCES

Locatable

As of March 1985 there are no mining claims or any evidence of mineral development in the WSA. A uranium anomaly occurs about one mile northeast of the WSA in the SW $\frac{1}{4}$ of section 12, T. 31 N., R. 55 E; where workings consist of several dozer cuts. The best uranium mineralization seems to be along the silicified margin of a limestone/sandstone contact where samples containing 240 to 440 ppm U₃O₈ were reported by Percival and Bright (1982). Another uranium occurrence was reported by Percival and Bright (1982) in tuffs about 6 miles north of the WSA. Although the source of uranium and mode of deposition are not well understood it is evident that the Humboldt Formation and possibly most of the Tertiary section comprising most of the WSA is a favorable host for

uranium mineralization. On the basis of this data area U1-3C is rated moderately favorable (3C) for uranium (Map 13). The remainder of the WSA is unfavorable for uranium (Area U2-1C, Map 13).

Quade and Tingley (1984) report high barium values in stream sediment samples from many of the channels draining the WSA. No source for the barium was found. The WSA is rated moderately favorable (3C) for barite. The WSA has low favorability or is unfavorable for other locatable minerals. See Table 15 for mineral favorability rating of other minerals.

Leaseable

Oil and Gas

The entire WSA was leased for oil and gas in 1983. Subsequently some of the leases have terminated. Due to the high industry interest in the area it is highly probable that the entire WSA would be leased if available for leasing. The WSA is rated as having high favorability (4C) for oil and gas. Noncommercial oil and gas discoveries have been reported in Tertiary strata near Jiggs, Nevada about 6 miles southwest of the WSA. A dry hole was drilled by Texaco in 1981 about 5 miles north of the WSA. This wildcat did not test the Paleozoic section which is productive in Pine Valley 25 miles southwest of the WSA. More recently (1984) ARCO submitted an Application for a Permit to Drill (APD) an exploration well through both the Tertiary and Paleozoic strata 3 miles west of the WSA. Seismic oil and gas exploration has continued at a high level near the WSA from 1983 to 1985.

Based on favorable oil maturation levels, excellent source rocks, nearby oil production and shows, and a favorable structural setting, the U.S.G.S. (Sandberg, 1983) rated the WSA as a prime area for petroleum exploration with high potential. Potential source rock include Paleozoic marine strata (Chairman Shale, Webb Formation, and Nevada Dolomite) and Eocene lacustrine oil shales of the Elko Formation.

Geothermal

The WSA contains no geothermal features or requisite geologic criteria in the area which would indicate favorability for geothermal resources. The WSA is rated unfavorable (1D) for geothermal resources. All other leaseable minerals are unlikely to occur in the WSA.

PALEONTOLOGY

Upper Pennsylvania and Permian strata contain sparse, local, very fossiliferous beds having invertebrate fauna consisting of brachiopods, bryozoans, crinoid columnals, foraminifera and gastropods (Smith and Ketner, 1975). Lower Tertiary rocks contain sparse ostracods, gastropods, and various plant fossils. Significant vertebrate fossils, consisting of equid, rhinocerotid, and camelid bone and tooth fragments (Smith and Ketner 1976) occur in the Miocene Humboldt Formation just north of the WSA and probably also occur in the WSA, although no localities are known to exist in the WSA. The overall evaluation of the WSA is moderately favorable (3C) for paleontological resources.

CONCLUSIONS

1. There are no mining claims or evidence of mineral development in the WSA.
2. High barium values from stream sediment samples make the WSA moderately favorable (3C) for barite.
3. Nearby oil shows, production, and very active exploration efforts in the area indicate that the WSA has high favorability (4C) for oil and gas.
4. Tertiary sediments within the WSA have moderate favorability (3C) for uranium mineralization as indicated by uranium mineralization within one mile of the WSA.

Standard No. 2: Impacts on Other Resources (including Wilderness) by Alternatives C and E (All Wilderness)

Wilderness

The wilderness resource would receive maximum protection under these alternatives. Naturalness, solitude, and opportunities for primitive recreation activities would be enhanced with wilderness designation over the short-term. These qualities would degrade over the long-term as a result of nonconforming activities (see Criterion No. 2 Manageability).

Minerals

Wilderness designation would result in a significant adverse impact to minerals. The area would be segregated from all forms of mineral entry, with the exception of valid existing rights. This would preclude drilling in the area and the potential discovery and development of mineral resources would be foregone. The WSA has high oil and gas potential and there is substantial industry interest in the area. Much of the WSA also has moderate potential for precious metals and/or uranium.

Range

The WSA involves two grazing allotments. One percent of the Hansel Allotment and 29% of the Crane Springs Allotment are within the WSA. Less than .2% of the WSA is in the Hansel Allotment. The remaining 99% of the WSA is within the Crane Springs Allotment. Approximately 26 AUMs of the Hansel Allotment would be within the WSA. This allotment is voluntarily operated under a rotation grazing system. The Crane Springs Allotment, operated under a season long grazing system, has 456 AUMs within the WSA. The ecologic status of both allotments is early to mid seral stage.

No range improvement projects have been proposed which would involve the WSA. Therefore, designation would have minimal impacts on grazing operations.

Forestry

The Red Spring WSA contains approximately 3,200 forested pinyon-juniper woodland acres or 41% of the unit. The WSA has a forested inventory of 32,700 standing cords of wood and a projected inventory of 128,200 posts. Basing reestablishment on a 200 year rotation, Red Spring could support an annual harvest of 150 cords of firewood and 320 fence posts. Elko, twenty miles to the north, has an annual demand for a harvest of 1400 cords of wood. Red Spring WSA has a high potential for being a major source for Elko and is capable of supplying about 12% of woodland products demand based on the annual average wood permit sales for 1983 and 1984.

With wilderness designation, harvest of woodland products would be prohibited. This, over time, would substantially increase the cost of fuelwood collecting for the average homeowner. For residents of Elko, distance to the next closest available wood products harvesting area would more than double. Related adverse impacts would be increased illegal wood cutting activities, both within the designated wilderness area and those closer areas of public land, which cannot support this activity.

Wildlife

Significant habitat enhancement projects such as mechanized seeding of forbs, construction of water reservoirs, and tree thinnings, while not now planned but desirable for habitat management of mule deer, would in the future be precluded or severely constrained.

Recreation

The area has little current recreational use, probably less than 125 annual user days including hunting and trapping. Most off-road vehicle use occurs in association with wood harvesting activities. The major percentage of use is centered around Red Spring. Off-road vehicles would be restricted with designation. Recreational use should remain about the same for annual user days, as losses in vehicle related activities would be offset with equal gains in primitive recreation use.

Cultural Resources

Refer to Quality Standard No. 2, B. 3 on page 7.

Standard No. 3: Impacts of Nondesignation on Wilderness Values (and Other Resources) by Alternatives A, B and D

Wilderness

In the event of nondesignation, the wilderness characteristics would be substantially eliminated over most of the WSA. Motorized activities would result in loss of naturalness, solitude, and primitive recreation opportunities. Anticipated exploration activities by mineral and energy interests would result in surface disturbance thereby adversely affecting naturalness over both the short and long-term. The anticipated extent of these motorized activities would eliminate the opportunities for solitude over most of the unit.

The impacts of tree cutting, creation of vehicle ways, chainsaw noise, and tree stumps would adversely impact naturalness and solitude over much of the area over both the short and long-term.

Minerals

A significant beneficial impact would occur to minerals with nondesignation as wilderness. Areas with high oil and gas potential and moderate potential for uranium and barite would be open to mineral exploration and development.

Range

To improve livestock distribution it is anticipated that two water wells would be developed with storage tanks, pipelines, service roads, and troughs. Minimal beneficial impacts to range are anticipated by nondesignation of the area as wilderness.

Forestry

With nondesignation of the WSA as suitable for wilderness, and upon release from Interim Management Protection, the area would be designated a greenwood cutting area. This area would be managed in conjunction with the present surrounding area for the harvest of woodland products. A significant beneficial impact to forestry would result.

Wildlife

Some sensitive species would continue to be protected during critical periods, however, most wildlife habitat would not be afforded the protection of wilderness designation. This area has no wildlife enhancement projects requiring maintenance by mechanical equipment, hence this program would not be benefited by nondesignation.

Recreation

It is not anticipated that motorized recreational vehicle use would increase. Increases in vehicle use would be anticipated in conjunction with wood cutting, energy and mineral exploration, and grazing management activities.

Cultural Resources

Management and protection of cultural resources would continue to be guided by all applicable laws affecting these resources. While these resources would not be afforded the added long-term additional protection provided by wilderness designation, any discovery requiring excavation would be less expensive to conduct due to the ability to use motorized equipment such as generators and air compressors.

Standard No. 4 Public Comment

During the Accelerated Wilderness Inventory in 1978, BLM received one letter of comment from a permittee in the area, who was in opposition to Wilderness Study Area status.

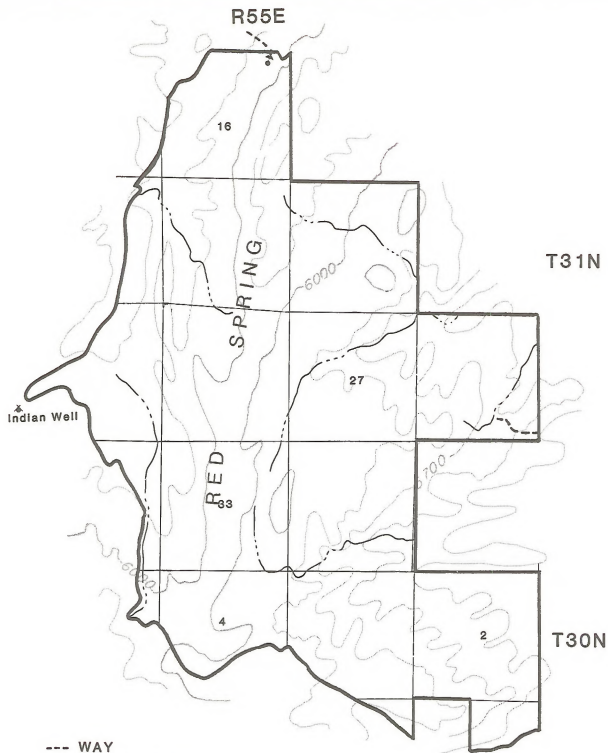
Standard No. 5: Local Social and Economic Effects

The Red Spring WSA is utilized by various individuals for livestock grazing. Even though a very small percentage of their businesses are based economically on the lands within the WSA the social aspect of the ranching way of life is very important to these ranchers and Elko County as a whole. Wilderness designation will not preclude ranching but it will introduce minimal increased costs of operation because of increased distances which must be traveled by foot or horseback to manage livestock and maintain range improvements.

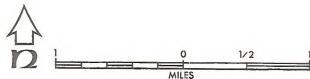
The unit could provide a substantially closer woodland harvest area for the local population, principally residents of Elko, thereby reducing the costs of fuel for many. The opportunity for local residents to continue to or enhance their harvest of fuelwood would be seen as a beneficial social impact.

Standard No. 6: Consistency with Other Plans

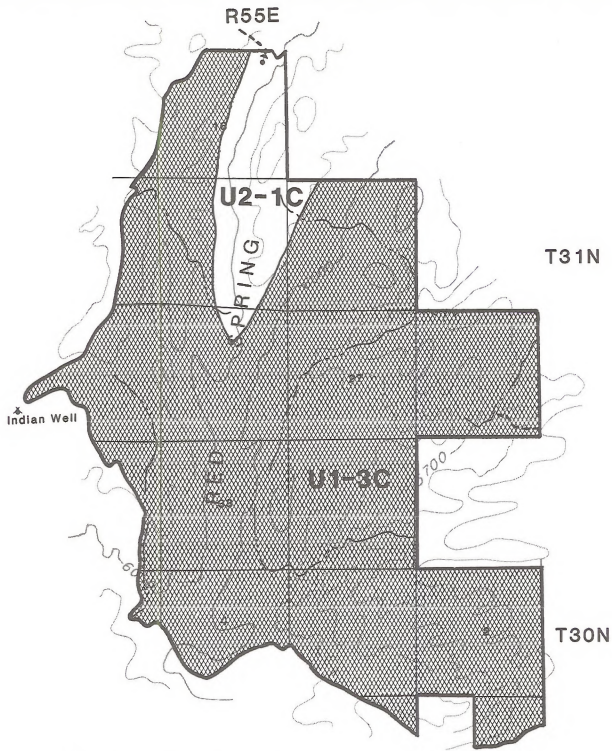
Refer to Quality Standard No. 6 on page 14.





- WAY
- DEVELOPED SPRING
- * WELL



EXISTING SITUATION
RED SPRING NV-010-091
MAP 12



LOCATABLE MINERAL POTENTIAL URANIUM

-  MODERATE FAVORABILITY (U1-3C)
-  UNFAVORABLE (U2-1C)

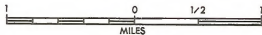


MINERAL POTENTIAL
RED SPRING NV-010-091
 MAP 13

R55E



FORESTED LAND



WOODLAND
RED SPRING NV-010-091
MAP 14

SELECTED REFERENCES

- Bentz, J.L. and Tingley, J.V. (1983) A mineral inventory of the Elko Resource Area, Elko District, Nevada: NBMG OF83-9.
- Bentz, J.L. and Tingley, J.V. (1983) Results of geochemical sampling within the Elko Resource Area, Elko, Eureka, and Lander counties, Nevada (portions of the Elko, McDermitt, Wells, and Winnemucca 2 sheets): NBMG OF83-10.
- Brooks, S.J. (1983) BLM staff field investigation. WSA case files.
- Coash, J.R. (1967) Geology of the Mount Velma Quadrangle, Elko County, Nevada: NBMG Bull 68.
- Department of Agriculture, Soil Conservation Service (1976) National Range Handbook. Washington, D.C.
- Hope, R.A. and Coats, R.R. (1976) Preliminary Geologic Map of Elko, Co., NV USGS open files map 76-779.
- Johnson, M.G. (1973) Placer Gold Deposits of Nevada: USGS Bull. 61 p. 43-45.
- Matthews, G.W. and Blackburn, W.H. (1983) Geology, Energy and Minerals Assessment, Rough Hills WSA. Unpublished report by Terradata, Lakewood Co., unpagged.
- Percival, T.J., and Bright, J.H. (1982) National uranium resource evaluation, Elko quadrangle, Nevada and Utah: United States Dept., of Energy, Open-File Report PGJ/F-046(82), 46p.
- Quade, J., and Tingley, J.V. (1984) Reconnaissance Geochemical Sampling of Mineral Resources in Red Spring Cedar Ridge GEM Resource Area, Elko Co. NV. unpublished, prepared by Nevada Bureau of Mines and Geology for the BLM.
- Roberts, R.J., et al (1971), Gold Bearing Deposits of North-Central Nevada and Southwestern Idaho. Econ. Geo, v. 66, p. 14-33.
- Rott, E.H. (1930) The Ore Deposits of Gold Circle District, Nevada. Unpublished masters thesis, Univ. of California, Berkeley.
- Sandberg, C.A. (1983) Petroleum Potential of Wilderness Lands in Nevada. U.S.G.S. Circular 902-H, 11 pages.
- Schrader, F.C. (1923) The Jarbidge Mining District, Nevada, (with a note on the Charleston District) U.S.G.S. Bull. 741.
- Smith, F.J., and Ketner, K.B. (1978) Geologic Map of the Carlin Pinon Range area, Elko and Eureka Counties, Nevada: U.S.G.S., Map I-1028.

- Smith, J.F., and Howard, L.A. (1977) Geologic Map of the Lee 15' Quadrangle. Elko County, Nevada: U.S. Geol. Survey, Map GQ-1393.
- Smith, F.S. and Ketner, K.B. (1975) Stratigraphy of Paleozoic rocks in the Carlin-Pinyon Range Area, Nevada. U.S. Geol. Survey Professional Paper 867-A, 87p.
- Smith, R.M. (1976) Mineral Resources of Elko County, Nevada: U.S.G.S., Open-File Report 76-56.
- Stewart, J.H. (1980) Geology of Nevada. Nevada Bureau of Mines and Geology Special Publication No. 4, 136 p.
- Vanderberg, W.O. (1936) Placer Mining in Nevada: NMBG Bull. 27.

APPENDIX I
WATER QUALITY STANDARDS
West Fork Bruneau River

Control Point

At Diamond "A" Road

Temperature °C

May to October Single Value. Not more than 22

November to April Single Value. Not more than 14

Maximum allowable temperature increase above receiving
water temperature:

May to October, 1°C not to exceed single value standard.

November to April, 1°C not to exceed single value standard.

pH Units

Annual Average. Within range 7.9 - 8.5

Single Value. Within range 7.7 - 8.6

pH. +0.5 pH units

Dissolved Oxygen - mg/l

Average (May through October). Not less than 9

Single Value. Not less than 8

BOD - mg/l

Annual Average. Not more than 3

Single Value. Not more than 4

Chlorides - mg/l

Annual Average. Not more than 5.0

Single Value. Not more than 7.0

Phosphates (PO₄) - mg/l

Annual Average. Not more than 0.15

Single Value. Not more than 0.20

Nitrates (NO₃) - mg/l

Annual Average. Not more than 1.0

Single Value. Not more than 1.5

Total Dissolved Solids - mg/l

Annual Average. Not more than 160

Single Value. Not more than 180

Suspended Solids - mg/l. Not more than 25

Color - No color which will adversely affect the beneficial uses of the water.

Turbidity - No turbidity which will adversely affect the beneficial uses of the water, i.e. not to exceed 10 NTU for cold water fishery (salmonids), and 50 NTU for warm water fishery (other than salmonids).

Fecal Coliform - The annual geometric mean shall not exceed 100 per 100 milliliters nor shall the number of fecal coliform in a single sample exceed 200 per 1--milliliters.

Beneficial Uses - Irrigation, stock watering, aesthetic, industrial, municipal, aquatic life and wildlife propagation, recreation and body contact, domestic (potential).

BLM EL PT 85 017 8500

Form 1279-3
(June 1984)

BORROWER

OH
76.5 Elko Resource Area
-N3 Report.
FA32
1985

DATE LOANED	BORROWER

USDI - BLM

Bureau of Land Management
Library
Bldg. 50, Denver Federal Center
Denver, CO 80225

