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HMA

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Habitat Management Plan (HMP)

Carson City District

Bureau of Land Management

Written 1988

ABSTRACT

This ten year plan was prepared to implement the goals and objectives of the Walker ROD which was issued in June of 1986. Key species are Hiko White River springfish, desert bighorn sheep, pronghorn antelope, mule deer, and chukar. Planned actions include: 1.) installation of protective fencing at two springheads, 2.) Short-term and long-term monitoring of twelve key riparian sites to ensure their protection, 3.) exclusion of domestic sheep grazing adjacent to a scheduled desert bighorn sheep release site, 4.) conversion of an upland game guzzler to accommodate big game use in support of a pronghorn antelope reestablishment, 5.) withdrawal of five acres surrounding a thermal fishery refugium developed to aid in the recovery of an endangered species, 6.) construction of three big game guzzlers in a proposed desert bighorn sheep release site, and 7.) installation of a wildlife drinker or access ramp at an existing spring development.

To implement this plan through fiscal year 1992 requires 9.2 BLM work-months and \$20,400 in BLM funding as well as 7.5 contributed work-months and \$4,800 in contributed funding. Additional funding may be necessary if short-term monitoring of riparian sites dictates a need to install protective fencing.

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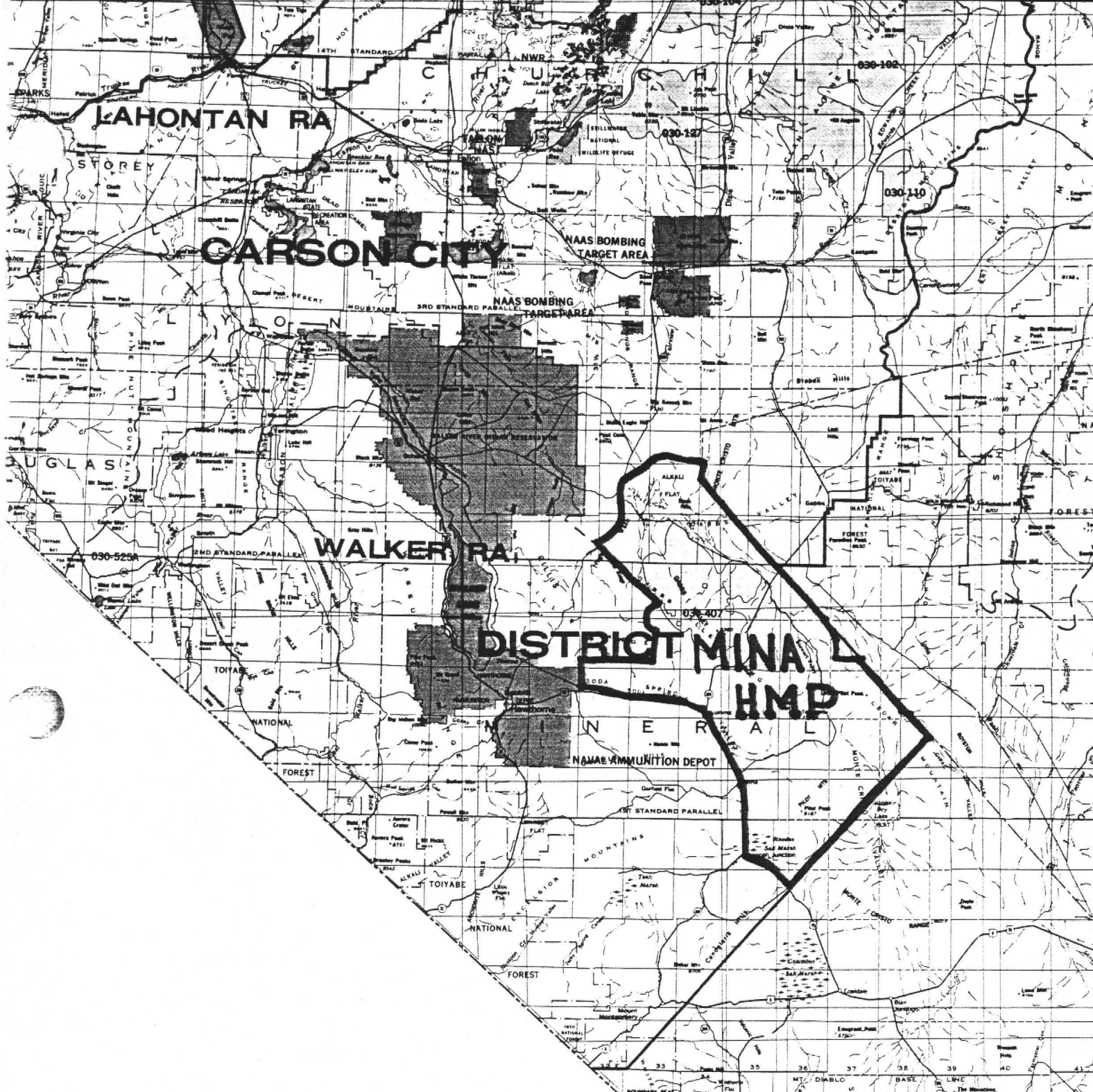
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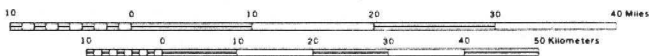


UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

STATE OF NEVADA

JUNE - 1986

Scale 1:1,000,000
1 inch equals Approximately 16 miles



BASE MAP BY U.S. GEOLOGICAL SURVEY

060-338
M E R A L D A
060-350

INTRODUCTION

REASONS FOR PREPARATION

This Habitat Management Plan (HMP) defines specific fisheries and wildlife habitat management objectives, actions, and timeframes necessary to carry out decisions stated in the Walker Record of Decision (ROD) (Appendix I) issued in June of 1986. Accomplishments toward implementation of the ROD include installation of protective fencing at Lower Summit and Graham Springs; development of Soloman, Upper Soloman, and Little Springs; and introduction of the Hiko White River springfish (Crenichthys baileyi grandis), an endemic species. The plan updates the completed Pilot Mountain Bighorn Sheep Release Plan and the Blue Link Spring Release Site Description and Plan to HMP standards and also incorporates proposed releases of desert bighorn sheep (Ovis canadensis nelsoni) and pronghorn antelope (Antilocapra americana).

Key species are Hiko White River springfish, desert bighorn, antelope, mule deer (Odocoileus hemionus), and chukar (Alectoris chukar). The Hiko White River springfish is an endangered species and therefore, has priority status for management. The desert bighorn is of high economic and recreational value, but is also sensitive to land use actions. Consequently, the BLM has classified it as a "sensitive species" giving it high priority for joint management with Nevada Department of Wildlife (NDOW).

A successful reestablishment of desert bighorns was accomplished in August of 1983 in the Pilot Mountains. It was enthusiastically supported by Nevada Bighorns Unlimited, local sportsmen and the Mineral County Commissioners. Antelope are also a very popular big game animal in Nevada where 14 hunting tag applications are received by NDOW for each tag issued.

Successful implementation of this ten-year plan relies heavily on funding support from and coordination with other BLM resource entities and NDOW. It provides supportive data and guidance which other resource specialists may find useful in development and revision of their respective management plans for this area.

ECOSYSTEM DESCRIPTION

SIZE AND LOCATION

The HMP area encompasses 923 square miles of public and private land in Mineral County, Nevada. The boundary coincides with the boundaries of the Pilot-Table Mountain and the Cedar Mountain livestock grazing allotments as depicted on the HMP map in Appendix I. Geographically, the area encompasses the Pilot Mountains and nearly all of both the Cedar Mountains and the Gabbs Valley Range. U.S. Highway 95 is the southwestern boundary and the Mineral County line is the eastern boundary. The northwestern boundary extends southwesterly from the ghost town of Rawhide, Nevada through Nugent Wash to U.S. Highway 95 at the north end of Soda Spring Valley.

CLIMATE

A typical Southern Great Basin cool desert climate is recorded at Mina, Nevada, located in Soda Spring Valley. Average January temperatures there are a daytime high of 45° F. and an overnight low of 18° F. while July averages are 96° F. and 60° F. respectively. Snow is a common occurrence at upper elevations from December through March.

MOUNTAIN HABITAT ZONE

The Mountain Habitat Zone is characterized by steep to rolling terrain above 5600 feet elevation. In the Cedar Mountains and Pilot Mountains, a juniper (Juniperus osteosperma) woodland is the primary vegetative type occupying the upper elevations. Associated understory plants include mountain big sagebrush (Artemisia tridentata vaseyana), mountain joint fir (Ephedra viridis), small rabbitbrush (Chrysothamnus viscidiflorus stenophyllus), cliffrose (Cowania mexicana stansburiana), lupine (Lupinus spp.), Sandburg bluegrass (Poa secunda), and phlox (Phlox spp.). A salt desert shrub vegetative type also occurs within this ecosystem at the lower elevations and includes shadscale (Atriplex confertifolia), mountain big sagebrush, mountain joint fir, dwarf goldenbrush (Haplopappus nanus), horsebrush (Tetradymia spp.), needlegrasses (Stipa spp.), and galleta grass (Hilaria jamesii).

plants include mountain big sagebrush, littleleaf mountain mahogany (Cercocarpus ledifolius intricatus), mountain joint fir, small rabbitbrush, desert bitterbrush (Purshia glandulosa), snowberry (Symphoricarpos spp.), and Nevada bluegrass. A typical salt desert shrub vegetative type occurs in the lower elevations and includes shadscale, mountain big sagebrush, mountain joint fir, dwarf goldenbrush, horsebrush, dryland greasewood (Sarcobatus baileyi), needlegrass, galletta grass, and cheatgrass (Bromus tectorum).

Approximately 40 desert bighorns inhabit the Mountain Habitat Zone along the west face of the Pilot Mountains (Fig.1) as shown on the HMP map. This

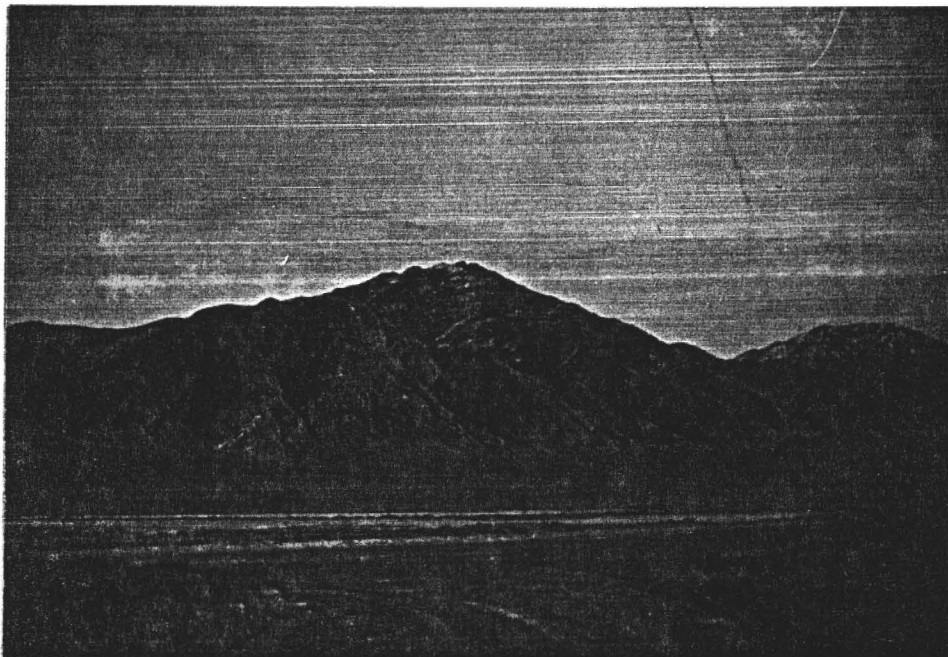


Fig. 1 - The west face of the Pilot Mountains affords necessary habitat requirements for desert bighorns. Key use areas center around five watering sites.

population resulted from a joint reestablishment effort with NDOW in 1983 involving the release of 22 animals into Telephone Canyon. The population was augmented by NDOW in 1986 with an additional ram and is now jointly monitored on an annual basis. Monitoring thus far indicates the animals have settled into the Release Site Area as expected. The primary use area extends from Water Canyon, to the second canyon immediately south of Telephone Canyon. The springs in this area which are felt to be crucial to herd survival and expansion include Spearmint, Telephone Canyon, Soloman (JDR #6296) and Upper Soloman Springs (JDR #6297). Little Spring (JDR #6298), while probably used by bighorns, merely supplements water found in Telephone Canyon. See Table 3 of Appendix III for a rating of various habitat parameters. Additional background information and monitoring reports of actual sightings and telemetry findings are in the Mina HMP file (6700) under a separate cover entitled Bighorn Sheep Monitoring.

Overall, habitat conditions for this herd area appear adequate. Water distribution was improved with the development of Soloman Spring, Upper Soloman Spring, and Little Spring in cooperation with NDOW. A copy of the Cooperative Agreement is in Appendix I.

The Pilot Mountain bighorn population is expanding as expected. The habitat is felt to be capable of supporting 120 head with a maintenance recruitment rate of 24 lambs per 100 ewes by 1995.

The Wildhorse Canyon area (Fig.2), located in the northern Gabbs Valley Range, contains physical habitat characteristics which NDOW has determined to be

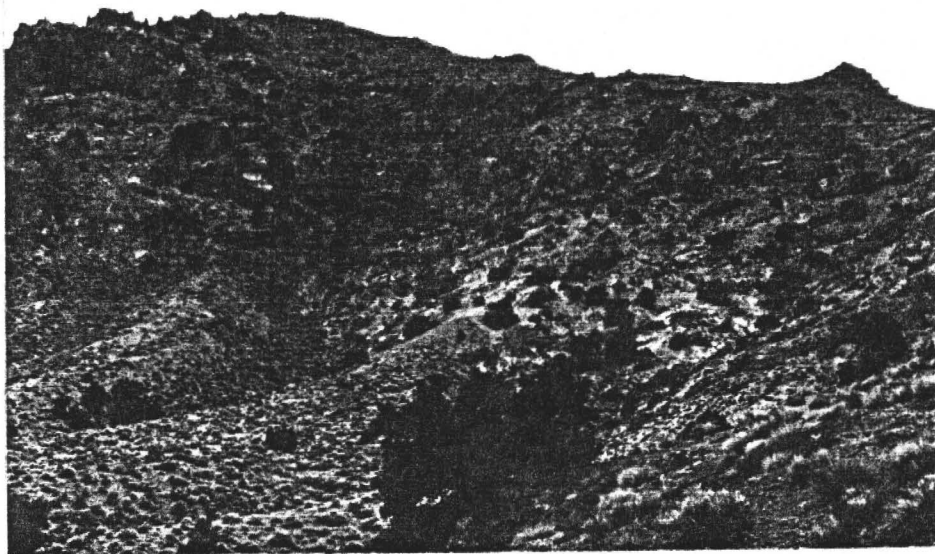


Fig. 2 - The Wildhorse Canyon Release Site area is characterized by scattered areas of steep and rocky escape terrain. Snow Spring is located at the base of this hillside.

suitable for bighorn habitation. Drinking water is available at Gillis Guzzler (JDR #6310), within Wildhorse Canyon, and at Snow Spring, located three miles to the southeast. Forage, while not abundant, is felt to be adequate. The primary areas of steep and rocky escape cover, necessary for survival from predators, are scattered along the northeast crest of the Gabbs

Valley Range. See Table 7 of Appendix III for a rating of various habitat parameters. Additional information is outlined in a Release Plan (Appendix II) prepared by NDOW.

This release was submitted by NDOW and BLM to the Nevada State Board of Wildlife Commissioners for their approval. The Board approved the release on May 9, 1987 with a scheduled release date of the winter of 1987-88. The Release Site area (see HMP map) lies adjacent to the Gillis Mountain Allotment which is licensed for domestic sheep grazing. Even though the allotment has not been grazed since 1983, winter grazing could be activated by the permittee on any year. Domestic sheep grazing within two miles of the Release Site area in the allotment could transmit deadly diseases to bighorns. Therefore, arrangements will be made to insure that domestic and bighorn sheep do not come in contact. The release date has been unofficially postponed until the winter of 1988-89 (personal communication with Greg Tanner, NDOW).

accomplished

The Volcano Peak area (Fig. 3), in southern Gabbs Valley Range, contains suitable bighorn habitat except for the complete lack of drinking water. (see HMP map). This area is not grazed by wild horses or cattle. If big game guzzlers were installed, this area would become suitable as a Release Site. See Table 8 of the Appendix III for a rating of various habitat parameters.

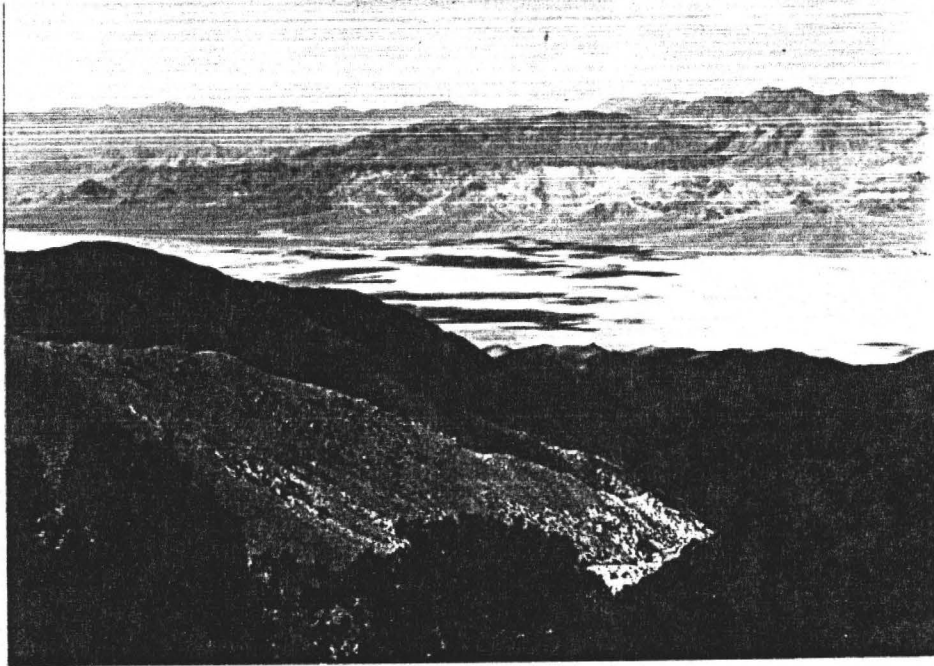


Fig. 3 - The Volcano ^{Peak} ~~Canyon~~ release site area rises above Soda Spring Valley. Installation of three guzzlers will make this area suitable for bighorn habitation.

Mule deer are found throughout the woodland habitats. General use areas are depicted on the HMP map. Seasonal migration is minimal, usually limited to elevational rather than lateral movement. Important use areas center around drinking water and stands of desirable browse plants such as desert bitterbrush, snowberry, littleleaf mountain mahogany, and cliffrose. Areas of concentrated use include the eastern portion of the Cedar and Pilot Mountains, the western rim of Sunrise Flat, and the area from Mt. Ferguson to Rhyolite Pass in the Gabbs Valley Range.

Mule deer habitat is typical of other desert mountain ranges in that forage quantity and quality is generally low. Riparian sites are not abundant nor do they provide adequate screening cover and forage characteristic of high quality fawning habitat. Consequently, mule deer population densities are relatively low. In 1977, NDOW established reasonable number estimates for the Pilot-Table Mountain Allotment and the Cedar Mountain Allotment of 453 and 30 head respectively. The ROD (p.2) states that the Bureau will manage habitat to support reasonable numbers in the long-term (ten years). It is unlikely that cattle or wild horses compete with mule deer for upland forage except near watering areas. Conflicts do exist however, on those riparian areas which are heavily grazed and trampled by cattle and wild horses. Refer to the section entitled Riparian Habitat Zone for specific details.

Coyotes (Canis latrans) and bobcats (Lynx rufus) are common furbearers inhabiting this Habitat Zone. Upland game species include mountain cottontail (Sylvilagus nuttallii), mourning dove (Zenaidura macroura) and chukar. Rocky hillsides with an abundance of grass cover, particularly cheatgrass, are favored areas for chukar. They are dependant upon drinking water during hot, dry weather and often concentrate along grassy riparian zones to feed on succulent forage. Key areas within the Pilot Mountains are Telephone Canyon, Water Canyon, Dunlap Canyon, and Troy Spring. Key areas within the Gabbs Valley Range are Paint Rock Canyon, Wildhorse Canyon, Cottonwood Canyon, Sunrise Flat, and the Benton Spring area.

A variety of raptors also inhabit the Mountain Habitat Zone. Prairie falcons (Falco mexicanus) and golden eagles (Aquila chrysaetos) nest on rock outcrops and feed in this habitat zone as well as in the Sagebrush Basin and Valley Habitat Zone.

Sparrow hawks (Falco sparverius) and red-tailed hawks (Buteo jamaicensis) nest in cottonwood trees or cliffs and hunt in the Mountain and the Sagebrush Basin and Valley Habitat Zones. The Cooper's hawk, which inhabits the Mountain Habitat Zone year round, nests in extensive riparian zones and feeds nearby.

A confidential inventory of raptor nest sites was conducted nearly ten years ago and is held by the District Wildlife Biologist.

The Bureau no longer conducts annual raptor nest inventories or production counts due to a shift in priorities, however, an ongoing effort exists to document raptor nest sites discovered incidental to other activities.

SAGEBRUSH BASIN AND VALLEY HABITAT ZONE

This Habitat Zone is characterized by flat to rolling terrain indented by occasional drainages and foothills. Four such areas are shown on the HMP map including Sunrise Flat (Fig.4), Calvada Flat, Win Wan Flat, and an extension of Ione Valley surrounding Humdinger Spring on the east side of the Cedar



Fig. 4 - The south end of Sunrise Flat drains into Volcano Canyon. The rolling terrain and sagebrush plant community is similar to other areas presently inhabited by pronghorn antelope.

Mountains. The primary vegetation is typically big sagebrush (Artemesia tridentata tridentata), mountain big sagebrush, dwarf goldenbush, horsebrush, shadscale, dryland greasewood, winterfat (Eurotia lanata), needle and thread grass (Stipa comata), galleta grass, cheatgrass, Sandberg bluegrass (Poa secunda), phlox, desert globemallow (Sphaeralcea ambigua) and various buckwheats (Eriogonum spp).

A few mule deer inhabit the fringes of Sunrise Flat and the area near Humdinger Spring where tree canopy and broken terrain offer adequate escape cover. Furbearers common to this Habitat Zone are coyotes and kit foxes (Vulpes macrotis). Upland game animals include cottontail (Sylvilagus audubonii), black-tailed hare, and morning dove.

JDR 3/27/89
Antelope ~~do not~~ presently occur within the HMP area ~~although~~ historical evidence suggests that antelope once occurred throughout most of the wide-open sagebrush basins and valleys of Nevada. The BLM and NDOW have proposed to reestablish antelope into the Sunrise Flat/Calvada Flat area during the winter of 1988-89. This action was approved May 9, 1987 by the Nevada State Board of Wildlife Commissioners. A copy of NDOW's Release Plan, which outlines habitat conditions and needs, is in Appendix II. The plan, recommends that Sunrise Flat Guzzler (JDR #6093) be converted to a big game guzzler. NDOW, Mineral County Sportsmen and Lacona Mining Company have agreed to supply materials and labor necessary for the conversion.

The Humdinger Spring area contains approximately 1200 acres of suitable antelope habitat. This area is not specifically slated for an antelope reestablishment effort since it is much too small to support a viable herd within the Carson City District. The area, however, is merely an extension of Ione Valley in the BLM Battle Mountain District which is scheduled for a release of antelope during the winter of 1987-88. It is unknown if antelope released in Ione Valley will utilize the Humdinger Spring area but no conflicts are foreseen if they do.

Win Wan Flat lies against the northwestern boundary of Pilot Mountain Allotment between the Gillis and Gabbs Valley Ranges. It is similar to Sunrise Flat in that it contains a dry lake bed but ironically, is devoid of water.

Attempts to drill productive wells for watering livestock have been unsuccessful. It appears this area, in combination with Win Wan Valley to the east, may be suitable antelope habitat if water were developed.

Current livestock grazing practices in this Habitat Zone do not have a significant impact on the wildlife resource (see Riparian Habitat Zone). This is due primarily to poor water distribution which restricts use by livestock.

Wild horse numbers are relatively low in this Habitat Zone due also to the general lack of drinking water. Calvada Flat supports a population of wild horses. They use Lower Petrified Spring as a watering area on what is generally the east side of their use area.

RIPARIAN HABITAT ZONE

Riparian habitat, as defined in BLM Riparian Area Management Policy of January 22, 1987 is "an area directly influenced by permanent water. It has visible vegetative or physical characteristics reflective of permanent water influence. Lake shores and steambanks are typical riparian areas. Excluded

are such sites as ephemeral streams or washes that do not exhibit the presence of vegetation dependant upon free water in the soil." Riparian vegetation consists of those plants directly dependant upon free water at that site. These include cottonwood (Populus fremontii), willow (Salix spp.), cattail (Typha spp.), rush (Juncus spp.), sedge (Carex spp.), saltgrass (Distichlis stricta), bluegrass (Poa spp.), watercress (Rorippa nasturtium aquaticum), and buttercup (Ranunculus spp.). Riparian plants filter pollutants, regulate water discharge, capture sediment, stabilize the soil, and protect the site from freezing and drying. The presence of healthy and abundant riparian vegetation is critical to the continued existence of any riparian ecosystem.

The Riparian Habitat Zone occurs throughout the HMP area, but comprises less than one tenth of one percent of the total land area. The great diversity in vegetative composition and structure provides unique habitat suitable to many wildlife species found nowhere else on rangelands. In fact, the vast majority of all wildlife species use or require riparian habitat for all, or a portion of, their life cycles. These sites are also concentration areas for wild horses and livestock because of their moderated climate, presence of drinking water and relative abundance of succulent forage. Overgrazing and trampling by wild horses and livestock compacts the soil, reduces its water holding capacity and removes the protective vegetation (Fig. 5). As grazing continues, the water table drops, the site recedes, soils erode away, and less palatable plants invade. Table 1 (Appendix II) lists all known riparian sites within the HMP area, their legal descriptions, and whether they have been developed.

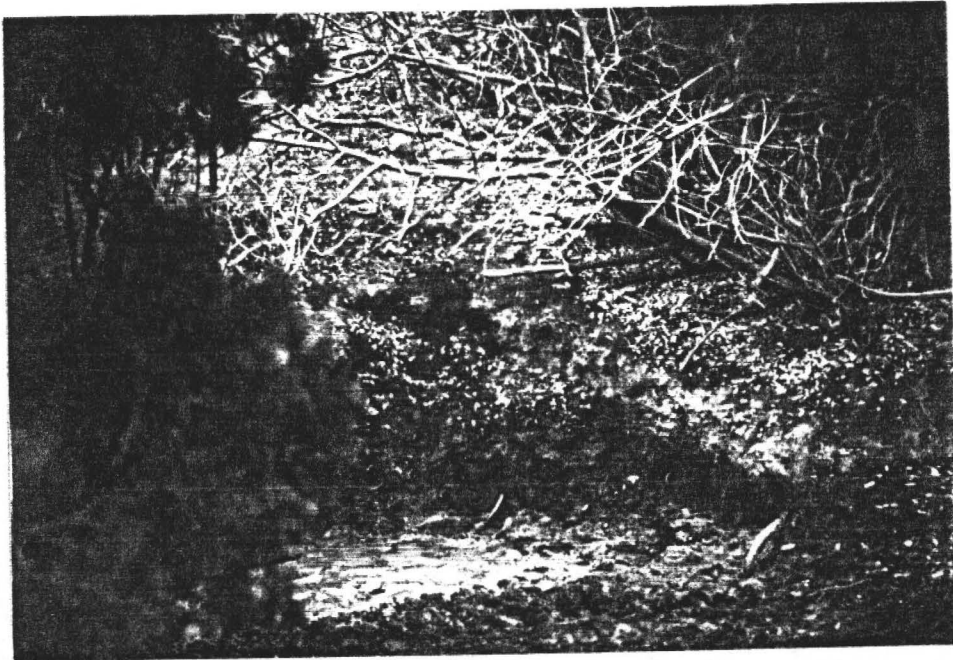


Fig. 5 - Snow Spring, located within the Wildhorse Canyon bighorn sheep release site area is badly trampled by wild horses. Proposed protective fencing would ensure its continued existence while overflow water would be available for wild horses and wildlife outside of the enclosure.

AQUATIC HABITAT ZONE

The only aquatic habitat within the HMP area is a small man-made pool fed by Blue Link Spring, an artesian thermal spring (Fig 6). The site is located south of Pilot Mountain as shown on the HMP map. The pool was probably constructed to water livestock in the area. Cattle, wild horses, and wildlife

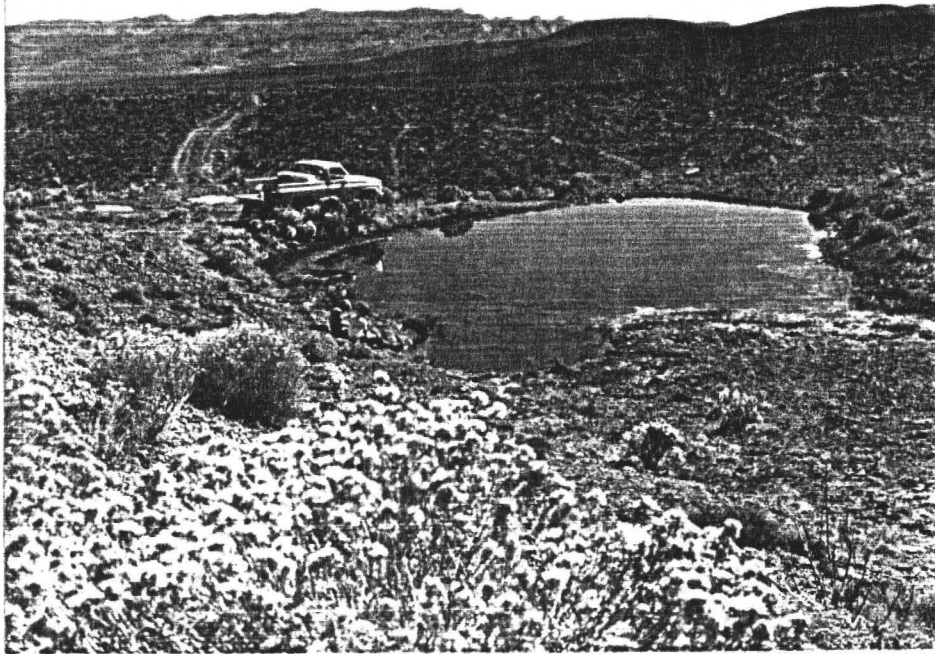


Fig. 6 - The pond formed by Blue Link Spring has proven to be suitable habitat for Hiko White River Springfish. Habitat conditions are cooperatively monitored annually.

water at the pool and along the overflow stream which extends several hundred feet downhill of the pool. Monitoring of the spring source since 1982 revealed high water quality and flows of 15 to 19 gallons per minute with temperatures of 98-102^o F. Although invertebrate life and submergent aquatic plants have been abundant in the pool for nine years or more, no fish life was previously recorded.

The spring was developed in 1985 as a permanent refugium for the Hiko White River springfish through the cooperative efforts of NDOW and BLM. A Release Site Description and Plan prepared by NDOW, an Environmental Analysis conducted by the BLM, and a Cooperative Agreement signed by both agencies satisfied BLM policy requirements and set management direction on the site. These documents are in Appendix II. Other Supplemental information concerning correspondence and monitoring is in the Mina HMP file under a separate cover entitled Blue Link Spring Refugium. Development efforts included installation of a springbox and piping of water to the existing pool which was physically altered, with the use of explosives, to create a suitable refugium. Specific details of project construction can be found in JDR file #6349.

NDOW transplanted 59 springfish on February 12, 1985 and an additional 178 springfish on October 14, 1985. A mark and recapture population estimate, which was jointly accomplished immediately following the second transplant, yielded a population of approximately 2885 springfish. The most recent census, also a mark and recapture estimate, was jointly conducted May 4 through 6, 1987 and produced an estimated 3900 springfish.

Effective October 28, 1985, the Hiko White River springfish (Fig.7) was listed as endangered in the Federal Register (50 CFR Part 17 as shown in Appendix III.) because their natural population was threatened by habitat alteration and by competition with exotic fish species. This action did not, however, designate Blue Link Spring as critical habitat since it is not within their natural range. However, the BLM must enter into Section 7 consultation with

the U.S. Fish and Wildlife Service (USFWS) prior to approving any action which may affect the springfish or its habitat. NDOW engages in informal consultation with the USFWS in conjunction with population censusing efforts. It is anticipated that the refugium will play an important role in the recovery of the species by supporting a buffer population and providing a valuable data base for research. It may also serve as a model for future development of refugia for similar species.



Fig. 7 - Population estimates of Hiko White River Springfish indicate they are flourishing at Blue Link Spring. Females (top) are speckled and males (bottom) are generally orange in color. Both fish pictured are adults.

Since the development of Blue Link Spring as a refugium, aquatic monitoring studies indicate that protective fencing is not advisable. The heavy use it is receiving by livestock and wild horses, while normally detrimental to other forms of fish and wildlife, may be beneficial in maintaining an open and nutrient rich habitat specifically suitable for the springfish. For example, observations at Ash Meadows, Nevada indicate that livestock grazing prevents riparian and aquatic vegetation from competing with pupfish for living space and that livestock manure transferred into the water may serve as feed for aquatic organisms which are an important food source for the pupfish.

Executive Order 5389 of July 7, 1930, withdrew all public land within one-quarter mile immediately surrounding a hot spring located on unsurveyed land from settlement, sale, and mineral entry for nonmetalliferous minerals. Blue Link Spring was noted to the Master Title Plat pursuant to this order on November 8, 1984. The land surrounding Blue Link Spring is, however, open to mining of metalliferous minerals under the general mining laws (See Planned Action #4). A copy of the Executive Order and the amendment to the authorizing act is in Appendix III. For additional details, see Realty Case File # Nev-061128.

LIVESTOCK GRAZING

The current grazing system in the Pilot-Table Mountain allotment, a category "I" allotment, is to graze approximately 1000 head of cattle from October 16 to March 31 (five and one-half months) of each year. Prior to 1985, the

allotment was grazed yearlong. The active preference is 7,900 AUMs with 285 AUMs held in suspended non-use. The draft Pilot-Table Mountain AMP proposes to change the grazing system to a three pasture rest-rotation system with two years of spring grazing, two years of fall grazing, and two consecutive years of total rest. In addition, four summer range pastures are proposed to be grazed four years out of six with two consecutive years of rest.

The grazing system in the Cedar Mountain Allotment, a category "M" allotment, is to graze approximately 185 head of cattle from November 1 to March 31 (five months) each year. The active preference is 925 AUM's.

Both grazing systems in existence are intended to improve the condition of upland vegetation. They have not been in conflict with wildlife habitat management objectives for upland vegetation. The proposed rest-rotation system for the Pilot-Table Mountain allotment would also be compatible since the two years of scheduled rest would allow for reproduction of deer browse plants.

WILD HORSES

The Pilot Mountain wild horse Herd Management Area encompasses nearly all of the Mountain Habitat Zone with the exception of the Cedar Mountains. The herd area extends from Nugent Wash, along the entire Gabbs Valley Range and Pilot Mountains to the Monte Cristo Mountains of Nye County (Battle Mountain BLM

District) as shown on the HMP map. An aerial survey, conducted in the spring of 1987, recorded a herd total of 1158 head, of which approximately 1000 head were within the Pilot-Table Mountain and Cedar Mountain allotments. The appropriate management level established in the Walker ROD is 466 head for the entire herd with 397 head established for the Pilot-Table Mountain and Cedar Mountain allotments and 69 head in the Battle Mountain District portion of the Herd Management Area. A gather of excess wild horses was completed in December of 1987 in which the herd was adjusted to its appropriate management level of 466 head within the Pilot-Table and Cedar Mountain allotments.

Wild horses, like livestock and wildlife species, rely on watering at springs surrounded by riparian vegetation. Because of the lushness of the vegetation and the close proximity to water, the riparian vegetation is utilized to an excessive amount and prior to grazing in upland areas. Therefore, riparian areas are always impacted even with lower numbers of wild horses. Because the wild horses rely on and therefore concentrate at watering areas, many spring sources are trampled which results in a decrease in water flow and fouling of the water. Watering areas which receive continued heavy use dry up prematurely under drought conditions because of the removal of the protective riparian vegetation and the physical breakdown of the water source.

Wild horse use of upland vegetation is not in serious conflict with wildlife. Wild horses normally do not browse on bitterbrush, the key forage plant for mule deer. Their diet does, however, contain a high percentage of forbs,

which are also important to deer and bighorns, and may be an area of competition where wild horse numbers are high. No conflicts have been noted or are suspected to occur with the existing bighorn population in the Pilot Mountains.

RECREATION AND PALEONTOLOGIC RESOURCES

Recreational use is extensive and relatively low. Activities include rock hounding, geological and historical sightseeing, four-wheeling, fur trapping, and most notably, hunting for mule deer and chukar. The HMP area lies within NDOW's mule deer Management Unit 205, where, in 1986, 43 deer were harvested.

Stewart Valley, which lies northwest of Cedar Mountain, contains a significant paleontological site. It is managed as an Area of Critical Environmental Concern with the goal of protecting these valuable resources while providing research opportunities.

The Gabbs Valley Wilderness Study Area (WSA) encompasses the area from Mount Ferguson to Superstition Canyon as shown on the HMP map. The area is being managed under the Interim Management Policy and Guidelines for Lands under Wilderness Review (IMP) until Congress acts on the President's recommendation on the suitability of the area for preservation as wilderness. Several riparian protection projects will be completed under these guidelines.

MINING ACTIVITY

The HMP area contains at least two mining districts, the Pilot Mountain mining district and the Santa Fe mining district. Mercury was discovered in what was to become the Pilot Mountain mining district in the early 1900's. The district is best known for those cinnabar deposits, some of which were high grade. Currently, there remains interest in the mercury operations, in tungsten mineralization of the east side of the Pilot Mountains, and in small silver, gold, and copper prospects. However, there was no record of production in the most recent (1986) Nevada Department of Industrial Relations list. There are two processing facilities in that list that are currently operating. Both of these are located in a developed residential/industrial tract immediately east of Mina, Nevada.

The Nevada listing of active mines likewise shows nothing in the Santa Fe district. That district was created shortly after the discovery of copper and silver in 1879. Significant tonnages of copper ore were mined during World War I. During and after World War II, sheelite (tungsten ore) was extracted from this district. In the early 1950's iron was produced from this district in an area east of Luning, Nevada. There are numerous gold/silver prospects in this district. Lacana Mining Company is in the development stage at this time. The proposed cyanide heap leach operation is located primarily in T. 9 N., R. 35 E., Section 6, near Calvada Summit. NDOW permitted the operation with the stipulation that the cyanide ponds and heap leach area be fenced to exclude entry by wildlife. This fence will also serve to exclude

wild horses and livestock. As a secondary precaution, Lacana Mining Company pledged \$1800 to BLM to improve and create water developments which would attract livestock, wild horses, and wildlife to areas away from their mining operation. In the event bighorn sheep are established in the area, Lacana suggested that it be involved in providing alternative water sources in the Volcano Peak area. In addition, N.A. Degerstrom, Inc. is developing a milling operation northeast of Bettles Well.

The Rhodes salt marsh in the southwestern corner of the HMP area was used historically as a source of salt and borax in the heyday of the Comstock Lode. It has been "vacant" since its use was supplanted by other, cheaper sources of salt and borax but, in 1984, a sodium prospecting-permit was issued for exploration of the marsh as a possible source of sodium minerals. Following granting of a preference-right lease, mining of sodium minerals can commence.

There are two or three patented mining claim groups in the plan area and there are probably between 1,000-2,000 unpatented mining claims as well. Fluctuations in the metal market will determine enthusiasm for mining on these claims.

RELEVANT CONSTRAINTS

This HMP is consistent with the goals and objectives of the Walker ROD. The terms and conditions set forth in the Walker ROD which constrain development of this plan include:

- 1.) Wild horses will be managed at the appropriate management level of 466 head subject to modification based on monitoring and public input.

2.) Lands within the Gabbs Valley Range WSA will be managed under the IMP which restricts certain surface disturbing activities which have the potential to degrade the areas' wilderness characteristics and constrain its suitability for preservation as wilderness. This limits project construction for protective fencing at Tom, Corral and Upper Petrified Spring.

3.) The Endangered Species Act protects the Hiko White River springfish. The BLM must consult with the USFWS prior to authorizing or allowing any action which may affect this species or its habitat at Blue Link Spring.

SIKES ACT AUTHORITY

This document was coordinated with Bureau resource specialists and interested publics and has been signed by NDOW. It therefore qualifies for Sikes Act funding under the Act of October 18, 1974 (P.L. 93-452 A), implemented on October 7, 1975.

LAND STATUS/ADMINISTRATION

The HMP area contains over 607,000 acres of land within two livestock grazing allotments as described in Table 2 of Appendix III.

Several rights-of-way have been granted and some small changes in land tenure have occurred. Within the Pilot Mountains bighorn sheep habitat area, this office has authorized rights-of-way for a water pipeline and for a communications site with an access road. Mineral County was issued a right-of-way to pipe water from Spearmint Spring, located in Water Canyon on an 80-acre parcel owned by the County, to Mina, Nevada, for municipal purposes. Approximately four-tenths of a mile of this right-of-way is within the bighorn habitat use area. The State of Nevada Communications Board, together with both the Nye and Mineral County Sheriffs' Departments, share a 100 x 100 foot communications site and an access road, 50 feet wide and 2.5 miles long, which are authorized under three rights-of-way grants.

This office granted rights-of-way for an overhead powerline and associated switching station. This facility bisects 2.5 miles of potential bighorn habitat southwest of Calvada Summit and two miles of potential antelope habitat in Calvada Flat. Impacts of this facility to the wildlife resource have been mitigated.

MANAGEMENT OBJECTIVES

The following Management Objectives are designed to achieve goals outlined in the Walker ROD:

1. A. Long-Term Objective: Maintain a good habitat condition class rating, as outlined in Manual 6630, in key use areas to support a reasonable population level of 483 mule deer by June 1996. This includes 453 head within Pilot-Table Mountain Allotment and 30 head within Cedar Mountain Allotment.

B. Short-Term Objective: Improve key mule deer habitat by limiting utilization to 55 percent on Cornelius, Big, Warner Corral, Sheep, and Mc Gregor Springs to meet demand for existing numbers of mule deer.

2. A. Long-Term Objective: Reestablish pronghorn antelope in the Sunrise Flat/Calvada Flat area and maintain a fair habitat condition class rating, as outlined in Manual 6630, within Sunrise Flat to support a herd of 150 animals yearlong by 1995.

B. Short-Term Objective: Improve water distribution and limit utilization of winterfat to 50 percent in Sunrise Flat.

3. A. Long-Term Objective: Within the northern Gabbs Valley Range release site area, maintain a habitat condition rating of 70, based on a modified Hansen Rating System, necessary to support a herd of 75 animals yearlong by 1995.

B. Short-Term Objective: Improve the habitat rating from 64 to 70 within the northern Gabbs Valley Range release site area to prepare it for reestablishment of bighorns.

4. A. Long-Term Objective: Within the Pilot Mountain bighorn herd area, improve the habitat condition rating from 92 to 100, based on a modified Hansen Rating System, necessary to support a herd of 120 animals yearlong by 1995.

B. Short-Term Objective: To support existing numbers of bighorn sheep, limit utilization to 55 percent of current year's plant growth on the following riparian sites: Soloman Spring, Upper Soloman Spring, Pine Tree Spring, Telephone Canyon Springs, and Little Spring. See Table 9 of Appendix III for key plant species and monitoring schedule for each site.

5. A. Long-Term Objective: Within the Volcano Peak release site area, maintain a habitat condition rating of 89, based on a modified Hansen Rating System, necessary to support a herd of 100 animals yearlong by 1998.

B. Short-Term Objective: Improve the habitat condition rating from 38 to 89 within the Volcano Peak release site area to prepare it for reestablishment of bighorns.

6. Make wildlife drinking water available at important watering areas.
7. Maintain the existing water quality at Blue Link Spring.
8. Increase water distribution to improve chukar habitat.

PLANNED ACTIONS

The following Planned Actions are necessary to accomplish the Management Objectives of this plan:

1. Install protective fencing at Snow and Upper Warner Springs. See Table I of Appendix II and Table 9 of Appendix III.

This action supports Management Objectives #1, 3, and 6.

2. By, September 1, 1988, preclude domestic sheep use within that portion of the Gillis Mountain Allotment lying within two miles of the Wildhorse Canyon release site area (14 square miles). Possible actions include:

1.) conversion of the allotment to cattle use; 2.) changing the allotment boundary to provide a two mile wide buffer zone and 3.) restricting the area of use within the allotment.

This action supports Management Objective #3.

3. Convert Sunrise Flat Guzzler (JDR #6093) to accommodate big game use by November 1, 1988. This includes the addition of a 1450 gallon tank, 16 x 16 foot apron, and 100 gallon drinker. The unit will be enclosed within a one-half acre enclosure.

This action supports Management Objective 2.

4. Withdraw five acres surrounding Blue Link Spring by 1990.

This withdrawal, together with the existing Hot Springs withdrawal (which excludes nonmetalliferous mining), would ensure reasonable protection of an environmentally sensitive area developed to support an endangered species. This action is stated as a Special Condition in the Cooperative Agreement signed in 1985 by NDOW and BLM for the development of Blue Link Spring as a refugium for the Hiko White River springfish.

This action supports Management Objective #7.

5. Install three big game guzzlers in the Volcano Peak area to support the release of bighorn sheep. The release is expected to be approved by the Nevada State Board of Wildlife Commissioners with a release date of 1990.

This action supports Management Objective #5 and 8.

6. Install a wildlife access ramp or drinker at Taft Spring by 1991. Install additional wildlife access ramps or drinkers at livestock troughs on a case-by-case basis.

This supports Management Objective #6 and 8.

EVALUATION AND MONITORING OF PROGRESS

A list of scheduled monitoring studies needed to evaluate planned actions is described on Form 6780-2 of Appendix III. Specifically, the BLM will continue to assist NDOW in monitoring and evaluation of reestablished fish and wildlife populations. The BLM and NDOW will delineate and monitor key use areas, such as watering areas, lambing areas, and kidding areas of released bighorns and pronghorn antelope. For reestablishments, the monitoring schedule shall be at least once a month for the first three months following the release; every other month for the next six months; every six months for the next year; and annually thereafter. NDOW will provide existing big game numbers on key use areas being monitored. Key deer and antelope use areas will be monitored using BLM Manual 6630. Two years after the release, key areas will be jointly delineated and the overall status of the population will be determined,

primarily through the use of radio-telemetry equipment and field observations. Any habitat studies necessary for proper management are the primary responsibility of the BLM and will conform with BLM Manual 6630.

NDOW will monitor water quality and quantity at Blue Link Spring in conjunction with censusing and will provide the BLM with copies of their seasonal census reports. NDOW is responsible for obtaining any permits which may be required by the USFWS to census the Hiko White River springfish.

The following riparian sites will be monitored annually to ensure their protection: Bank, Snow, Telephone Canyon, Little, Upper Warner Corral, Blue Link, Soloman, Warner Corral, Upper Soloman, Pine Tree, Big and McGregor Springs. Monitoring of these sites will consist of utilization studies conducted in the short-term. Table 9 of Appendix III describes management objectives, monitoring responsibility, and whether management objectives are being met for the above 12 sites.

COORDINATION WITH OTHER BLM PROGRAMS, AGENCIES AND ORGANIZATIONS

This plan has been reviewed by all other BLM District resource specialists and coordinated with their activity plans to the extent practical. The District Fire Management Plan dictates least cost full suppression of wild fire within the entire HMP area with the exception of the Gabbs Valley Range WSA, where caution is exercised to avoid unnecessary impairment of the area's suitability

for preservation as wilderness. Outside of the WSA, an attempt is made to obtain approval prior to using dozers. This will prevent further road construction and will help protect areas of high resource value.

This HMP is in accordance with stipulations published in the Regional Environmental Analysis Record for Geothermal/Oil and Gas Leasing in the Mina Area. (See central files 1791/3200). It was coordinated with NDOW and supports their long-range wildlife objectives. It was also coordinated with the State Clearinghouse, Sierra Club, Lacana Gold Inc., USFWS and the livestock permittees having grazing privileges within the HMP area. No Recovery Plans for threatened or endangered species are involved in the HMP area.

WILDLIFE ECONOMICS

A benefit cost analysis has been prepared for this plan using the Sageram computer program. The program option selected analyzed only the change in monetary value derived from hunting which can be directly attributed to completion of project work. Increases in associated values such as livestock and wild horse habitat, non-game wildlife habitat, water quality and quantity, soil conservation, aesthetics, and non-hunting forms of recreation are not considered in the Sageram computer program. The benefit cost ratio of this plan is 1.7 to 1. Tables 3 and 4 in Appendix III display the data from which this value was derived.

NDOW is currently tabulating wildlife economics data as it pertains to mule deer harvest programs. When completed, this report will be included in Appendix III.

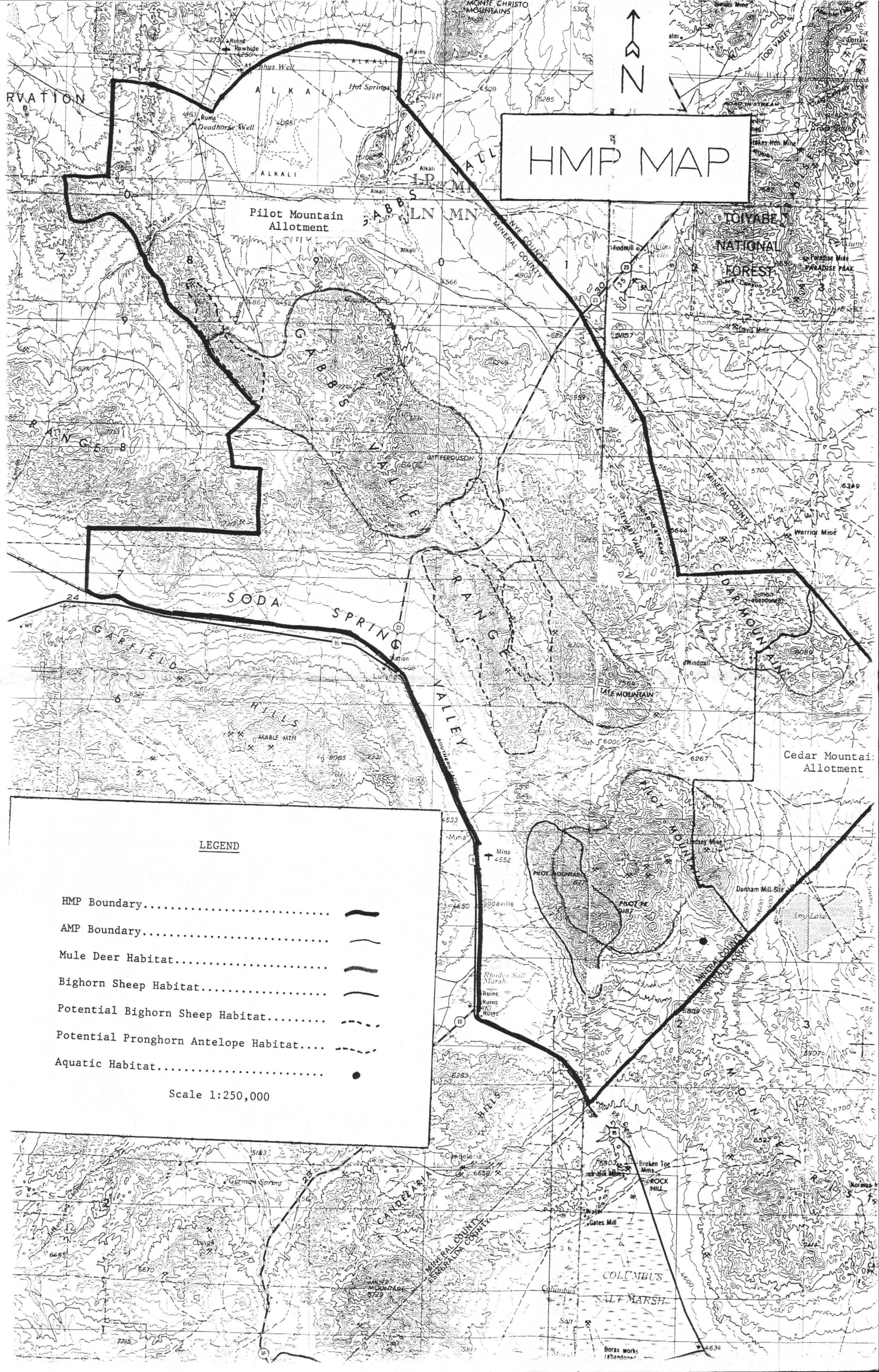
WORKMONTH AND FUNDING NEEDS

To implement this plan through fiscal year 1992 requires 9.2 BLM workmonths and \$20,400 in BLM funding. Contributed funding includes approximately \$1000 from NDOW to convert Sunrise Flat Guzzler, \$1800 from Lacana Mining Company, and \$2000 from Oxbow Geothermal Corporation. Local sportsmen will donate 1.5 work-months of labor required to complete project work and project maintenance. Table 5 in Appendix III portrays work-month and cost needs by fiscal year through 1992. After 1992, additional funding may be necessary to install protective fencing around riparian sites where monitoring indicates a need.

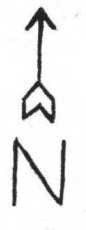
ENVIRONMENTAL ASSESSMENT

PROPOSED ACTION AND ALTERNATIVES

The proposed action is to implement the Planned Actions of this HMP (p. 23-25). The alternative is no action.



HMP MAP



LEGEND

- HMP Boundary.....
- AMP Boundary.....
- Mule Deer Habitat.....
- Bighorn Sheep Habitat.....
- Potential Bighorn Sheep Habitat.....
- Potential Pronghorn Antelope Habitat....
- Aquatic Habitat.....

Scale 1:250,000

ALKALI
 Hot Springs
 Pilot Mountain Allotment
 SODA SPRING
 VALLEY
 MOUNTAIN
 NATIONAL FOREST
 CEDAR MOUNTAIN Allotment
 MINERAL COUNTY
 TOiyABE COUNTY
 RAIN GAP
 GAPFIELD
 HILLS
 MABLE MTN
 LATE MOUNTAIN
 PROCTER MOUNTAIN
 PILOTT PEAK
 Rhodes Salt Marsh
 Rains
 Runns
 Runns
 Runns
 Candelaria
 German Spring
 Broken Toe Mine
 ROCK MILL
 Gates Mill
 Columbus SALT MARSH
 Borax works (abandoned)

ENVIRONMENTAL CONSEQUENCES

PROPOSED ACTION

Implementation of the proposed action would increase the number and diversity of wildlife species through reintroductions of desert bighorn sheep and pronghorn antelope, protection of riparian habitat, and increased water availability for wildlife. Initially, riparian vegetation associated with Snow and Upper Warner Springs would be fenced to prevent overgrazing and trampling by livestock and wild horses while allowing use of available drinking water outside the exclosures. Livestock and wild horse use of ten other key riparian sites would be monitored annually and management measures (wild horse removal, fencing, etc.) taken to protect those riparian sites where management objectives are not met in the short-term. Protection of riparian sites would benefit livestock, wild horses, and wildlife populations. Specifically, it would improve the quality and quantity of mule deer fawning habitat and improve water quality and quantity for all users. Fence construction would cause slight soil disturbance and some temporary removal of upland vegetation. Roads or trails would not be constructed to worksites. Fencing materials and fenceline location would be specifically selected to blend into the surrounding landscape.

The reintroduction of desert bighorn sheep would preclude the Bureau from permitting domestic sheep grazing within two miles of those areas. The successful reintroduction of pronghorn antelope, however, would not preclude grazing by livestock or wild horses. Conversion of Sunrise

Guzzler to accommodate big game use would benefit antelope and other wildlife but would have no effect on livestock or wild horses.

The installation of three big game guzzlers in the Volcano Peak area would benefit desert bighorn sheep, chukar and other wildlife but would not affect livestock and wild horses. Guzzlers would be painted desert tan in color to blend into the surrounding landscape. Soil disturbance and removal of native vegetation would be minimal. Roads or trails would not be constructed to the work site.

Providing wildlife access to drinking water at Taft Spring and other springs, on a case-by-case basis, would improve water distribution for chukar and other wildlife but would not affect livestock or wild horses.

Withdrawing five acres of land around Blue Link Spring would remove only a minute portion of the Public Land within the HMP area (607,000 acres) from the General Mining Laws. This action would protect a refugium inhabited by an endangered fish and would not affect livestock or wild horses.

Bank and McGregor Springs lie within the Gabbs Valley Wilderness Study Area (WSA). In the event that project work such as protective fencing would occur within the Gabbs Valley WSA, a separate environmental assesment would be prepared to assess impacts to the wilderness resources. The environmental assessment process would employ notification procedures

and construction standards outlined in the Bureau's Interim Management Policy and Guidelines for Lands under Wilderness Review (document # H-8550-1).

The proposed action would have no impact to the Stewart Valley ACEC.

NO ACTION

Under this alternative, wildlife habitat conditions would remain status quo or deteriorate. Desert bighorn sheep and pronghorn antelope would not be reintroduced into suitable habitats. Guzzlers would not be installed into the Volcano Peak area and the upland game guzzler in Sunrise Flat would not be converted for big game use. This would not effect livestock or wild horse populations.

Competition for food, water, cover and living space would continue at and adjacent to many riparian sites and watering areas. The condition of many riparian sites would remain poor or deteriorate. This by itself would reduce wildlife populations dependant upon healthy riparian habitat but would have only a small negative affect on livestock and wild horses using the sites for drinking water. Water quality and quantity at many riparian sites would be reduced or the water source could dry up completely in the long-term. This would have a delitarious affect on wildlife, particularly desert bighorn sheep, as well as livestock and wild horses dependant upon these water sources.

The refugium at Blue Link Spring would not be protected from mining activity. The endangered fish species inhabiting this area could easily be exterminated. This would not affect livestock or wild horse populations in the area.

Wildlife access to drinking water at Taft Spring and other livestock watering areas would not be provided. This would restrict chukar and other wildlife populations from expanding but would not affect livestock or wild horses using the watering area.

FINDING OF NO SIGNIFICANT IMPACT/DECISION RECORD

The proposed action as mitigated would have no significant adverse environment impacts; therefore an environmental impact statement is not necessary. It is in conformance with the Walker RMP. The proposed action has few impacts on the WSA or the visual quality of the HMP area. Proposed project work has an overall beneficial impact on the environment and outweighs those slight negative impacts associated with project construction.

Implementation of this HMP is necessary to meet Bureau commitments stated in the Walker RMP, the Big Game Reestablishment and Transplant Plan for 1987-1989, and the Cooperative Agreement for the Development of Blue Link Spring as a Refugium for the Hiko White River Springfish. Therefore the proposed action is approved.

ENVIRONMENTAL ASSESSMENT NO. NV-03-4-93

Blue Link Spring Development

as a

Refugium for White River Springfish

T. 5 N., R. 37 E., Sec. 5 (unsurveyed)

I. INTRODUCTION

During March of 1984, all known thermal springs on the Carson City District BLM lands were jointly inventoried by Nevada Department of Wildlife (NDOW) and BLM personnel. Field investigations revealed that Blue Link Spring held potential as a refugium for several endemic thermal fishes. On September 10, 1984, NDOW requested that this spring be jointly developed as a refugium for White River Springfish (Crenichthys baileyi grandis), a state-listed sensitive species. The Desert Fisheries Council has, however, proposed legislation to place this species on the Endangered list. This action was prompted by the elimination of the species at its original site, Crystal Springs in Lincoln County, Nevada, due to human developments and introduction of exotic tropical fish. The only known population is currently being held in a small sun-warmed pond at the University of Nevada at Las Vegas. In the event White River Springfish become established in Blue Link Spring, they could eventually be re-introduced into Crystal Springs if rehabilitation efforts there are successful.

The introduction into Blue Link Spring would occur after project work has been completed and monitoring of water temperature and chemistry indicates habitat conditions within the pool are suitable. A Release Site Description and Plan has been prepared by NDOW for this action. Upon approval of this Environmental Assessment, a Cooperative Agreement between NDOW and the BLM will fulfill administrative requirements for this introduction.

Current uses of Blue Link Spring include drinking water for livestock, wildlife and wild horses, and possibly for bathing. An old bathtub occurs on the site, which may be used at times. The spring may be located on a mining claim, but there is no evidence of surface disturbance in the vicinity of the spring.

Since Blue Link Spring is a naturally flowing hot springs, its waters and the land within one-quarter mile are withdrawn from settlement, location of non-metaliferous minerals, sale or entry and are reserved for lease by Executive Order 5389 of July 7, 1930.

II. PROPOSED ACTION AND ALTERNATIVE

The proposal is to develop Blue Link Spring as a permanent refugium for White River Springfish at which time the fish would be introduced by NDOW. Actual site development would include placing a 24-inch diameter

springbox into the spring source and diverting the majority of the springflow out of the natural flow channel directly into the existing pool. This would be accomplished using 1½ inch diameter pipe buried 18 inches below ground level. A lesser amount of springflow would be piped back into the natural flow channel using ¾ inch pipe (see attached diagram). If the introduction proves successful, the BLM would attempt to withdraw from mineral entry approximately five acres of land immediately surrounding the site. Also, if results of subsequent monitoring efforts indicate that use of the spring source or pool area by livestock or wild horses threatens the survival of the fish, the area affected would then be fenced with drinking water provided outside of the enclosure for livestock and wild horses.

The only alternative to the proposed action is that of no action.

III. EXISTING ENVIRONMENT

Blue Link Spring is located in a remote desert environment 15 miles east of Sodaville, Nevada, in Mineral County. The spring originates as an artesian flow and drains downslope about 170 feet into a 0.1 acre man-made pool then flows out of the pool a distance of 600 feet down a natural drainage. Estimated flow is 19 gallons per minute. Water temperature at the source is a constant 98-99 degrees Fahrenheit. Riparian vegetation occurs at the spring source, along the springflow channel, next to the pool, and along the overflow channel below the pool. Submergent vegetation inhabits the entire pool area.

IV. ANALYSIS OF THE PROPOSED ACTION AND ALTERNATIVE

Excavation required for placement of the springbox into the spring source and for burying the pipe would be minimal and would not significantly alter the flow volume or the appearance of the site. The primary impact would be that the average temperature of the water in the pool would be increased 10 to 30 degrees Fahrenheit (depending upon ambient temperature) as a result of directly piping water from the spring source into the pool. Since some flow would be piped back into the original flow channel, riparian vegetation in that area will not be noticeably impacted. Increased water temperature in the pool is not expected to adversely impact submergent vegetation, but may make it less suitable as drinking water for livestock, wildlife and wild horses. This does not present a problem, since cooled overflow water is readily available for use below the pool.

The spring would remain useful for bathing in the old bathtub occurring at the site since adequate water would be piped above-ground as occurred prior to development. It is doubtful that a small amount of bathing would impact the fish.

If withdrawal efforts are successful, approximately five acres of land would be removed from potential mining production. If Blue Link Spring occurs on a ~~minimal~~^{mineral} claim, this action may impact the claim but surely would have only a minimal impact on mineral production in Mineral County.

In the event, the White River Springfish becomes federally listed as endangered, consultation between the BLM and the US Fish and Wildlife Service would determine if Blue Link Spring should be designated as critical habitat. If such designation occurs, the BLM would then be responsible for maintenance and protection of the area.

A cultural resources inventory of the work site revealed no cultural resources present. Since project work would be minimal, the requirement for a Cultural Resources Report has been waived.

If the "no action" alternative is chosen, the environment and current uses of the area would remain unchanged. Choosing this alternative would, however, forego an opportunity to help secure the survival of the White River Springfish, although it is unlikely that it would result in the extinction of the species.

V. PERSONS AND GOVERNMENT AGENCIES CONSULTED

Jack Estill, Livestock Permittee
Mike Sevon, NDOW
Roy Leach, NDOW
Sam Millazzo, NDOW
Leroy McClellan, NDOW
Osborne Casey, BLM
State Clearinghouse

VI. PARTICIPATING AND REVIEWING STAFF

Rick Brigham, Wildlife Biologist
Bashir Sulahria, Hydrologist
Dave Schafersman, Hydrologist
Sid Houpt, Range Conservationist
Ron Buder, Geologist
Lynda Armentrout, Outdoor Recreation Planner
Patricia A. Boykin, Realty Specialist
Steve Weiss, Environmental Coordinator

Initials

RB
BS
DS
SH
LB
LA
PAB
SW

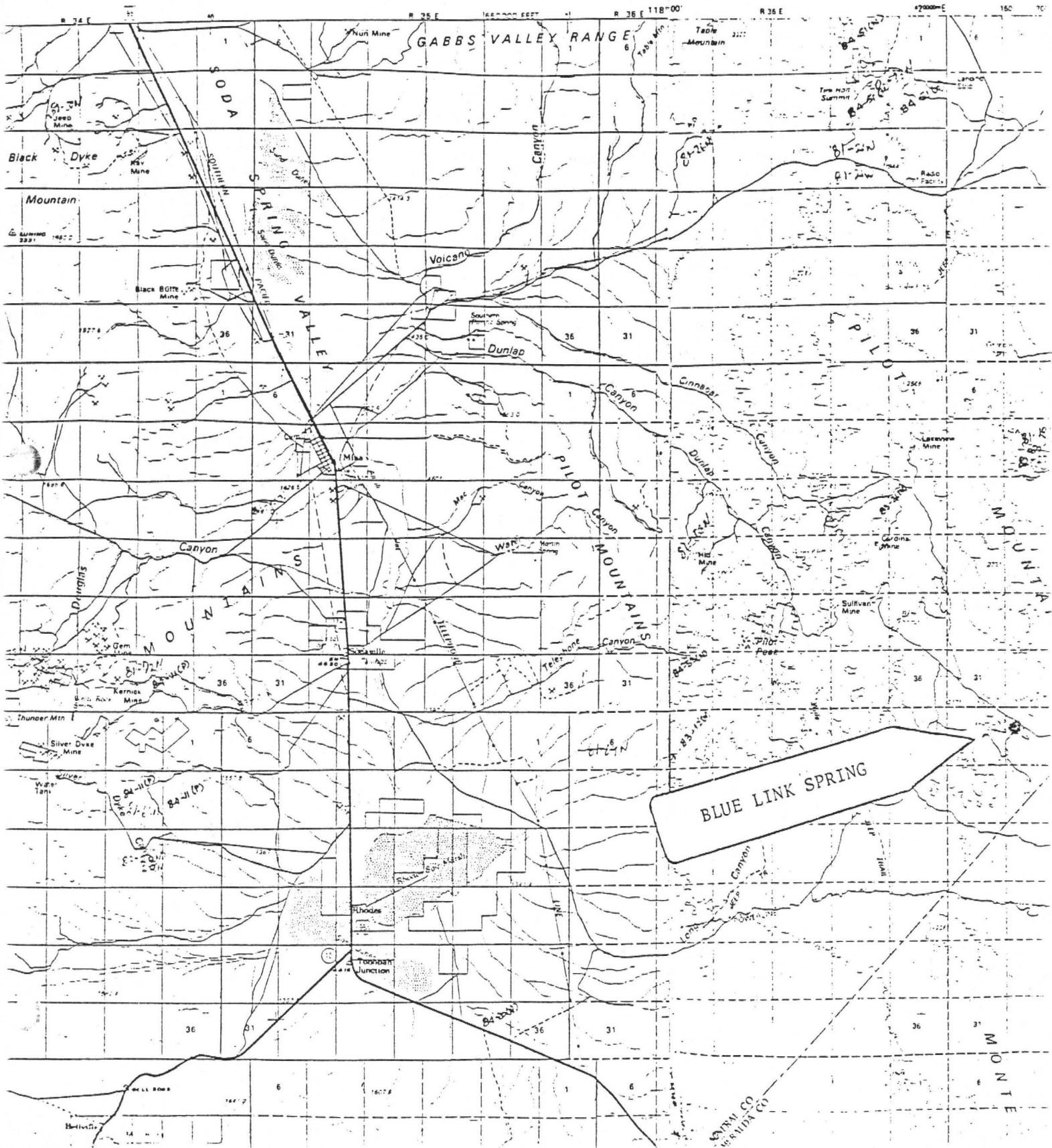
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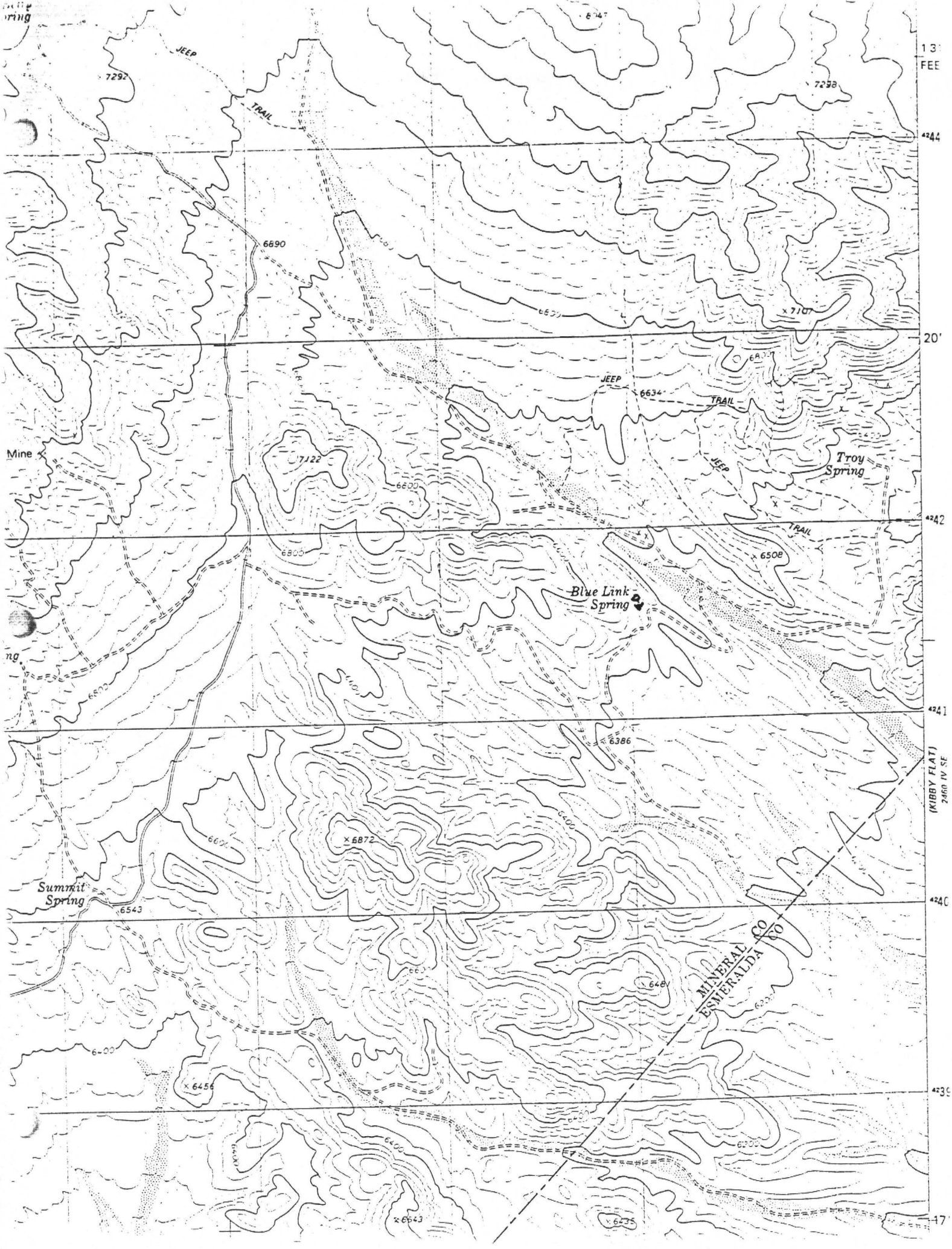
Daniel W. Delany
Daniel W. Delany
Wildlife Management Biologist
Walker Resource Area

9-25-84
Date

EXCELSIOR MTN. QUADRANGLE
NEVADA-CALIF.
1:100 000-SCALE SERIES (PLANIMETRIC)

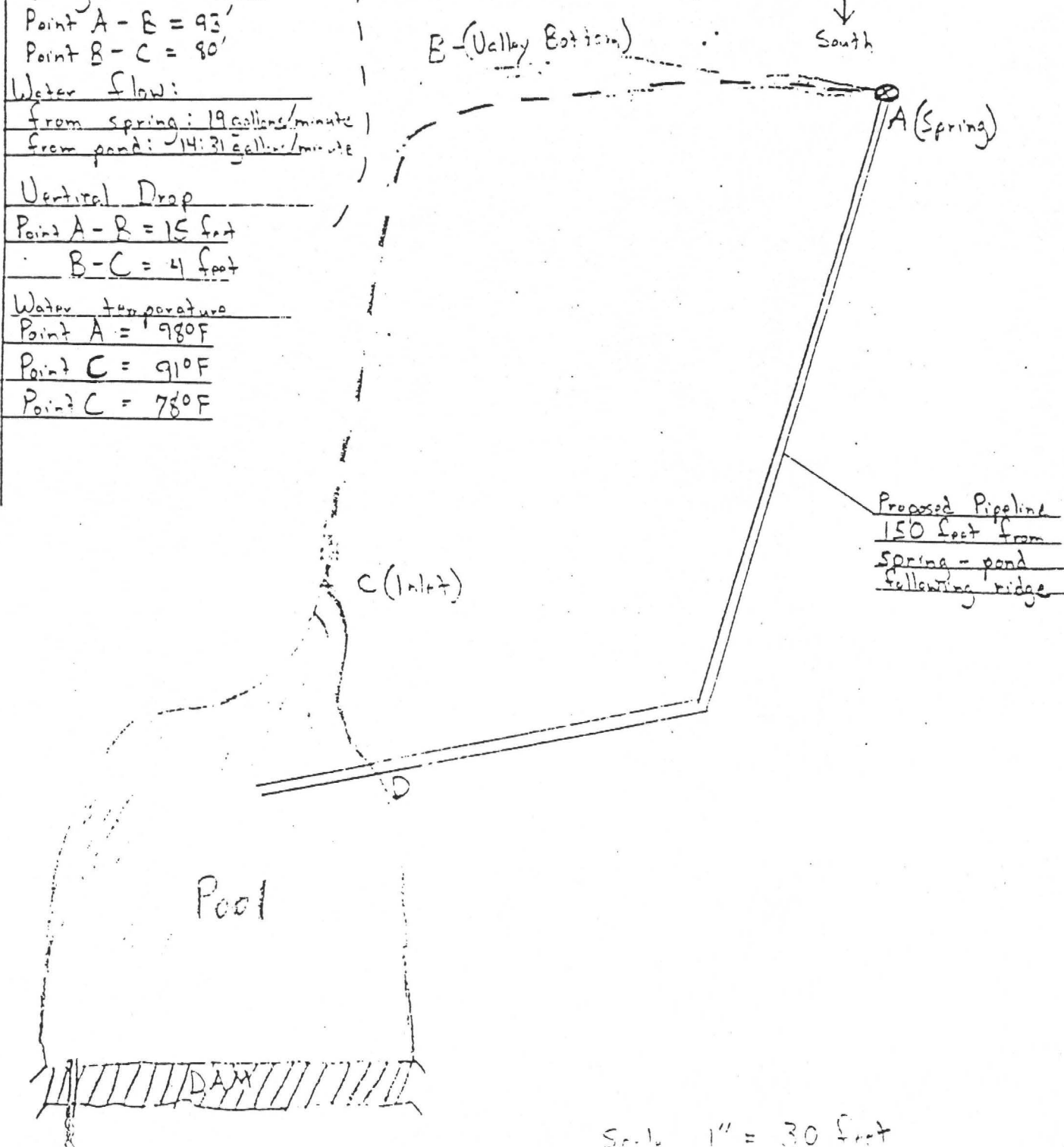
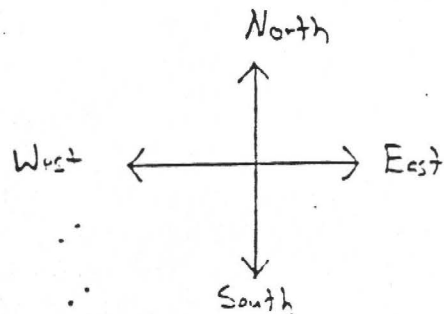
UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT





Blue Link Spring - September 14, 1984

<u>Pond Dimensions:</u>	
Maximum depth =	5 feet
Width Dam =	63 feet
West side =	105 feet
East side =	63 feet
<u>Spring channel</u>	
Point A - B =	93'
Point B - C =	80'
<u>Water flow:</u>	
from spring:	19 gallons/minute
from pond:	14:31 gallons/minute
<u>Vertical Drop</u>	
Point A - B =	15 feet
B - C =	4 feet
<u>Water temperature</u>	
Point A =	78°F
Point C =	91°F
Point C =	78°F



EO 5389

Executive Orders

- (1) Agricultural extension agents and home demonstration agents employed in field positions in the Indian Service, the work of which is financed jointly by the Indian Service and cooperating persons or organizations outside the Federal service. Appointments hereunder may be made only where the employment of a full-time agent is not justified.

HERBERT HOOVER

THE WHITE HOUSE,

July 2, 1930.

[No. 5388]

Executive Order 5389. July 7, 1930

Executive Order

Withdrawal of Public Lands Containing Medicinal Springs

United States

Under authority of the act of Congress approved June 25, 1910 (36 Stat. 847), as amended by the act of August 24, 1912 (37 Stat. 497), it is hereby ordered that every smallest legal subdivision of the public land surveys which is vacant unappropriated unreserved public land and contains a hot spring, or a spring the waters of which possess curative properties; and all land within one-quarter of a mile of every such spring located on unsurveyed public land, exclusive of Alaska, be, and the same is hereby, withdrawn from settlement, location, sale, or entry, and reserved for lease under the provisions of the act of March 3, 1925 (43 Stat. 1133), subject to valid existing rights.

This order shall remain in full force and effect unless and until revoked by the President or by act of Congress.

HERBERT HOOVER

THE WHITE HOUSE,

July 7, 1930.

[No. 5389]

~~(b) Upon notice from the authorized officer of the Bureau, cooperators will promptly supply labor, materials, and equipment as specified in paragraph 3(a) as required. Contributed materials in excess of the amount required shall be returned to the contributor. Equipment contributed shall be returned promptly following completion of the work. Work will be conducted under the supervision and direction of the authorized officer and shall be pursued with diligence until completed.~~

~~4(a) The cooperator(s) shall be liable, jointly and severally, for the repair and maintenance of the improvements following completion, in good and serviceable condition. The cooperator(s), without further notice from the authorized officer shall do the necessary work promptly. If work is not performed as necessary, the authorized officer shall notify the cooperator(s) and specify a period within which to complete the work as required.~~

~~(b) In event the cooperator(s) default in the repair and maintenance of the improvements the authorized officer may do or cause such work to be done for and in behalf of the cooperator(s) and the necessary cost and expense thereof shall become a charge and obligation upon and shall be paid by the cooperator(s). It is further understood in case of default that any grazing permit or lease may be cancelled and may not be renewed or extended or any assignment thereof may not be approved unless and until all charges and costs owed by the cooperator(s) hereunder shall have been paid; and provided that the Bureau may pursue such other remedies, legal or administrative, as may be authorized.~~

(c) Repair and maintenance, as herein required, shall mean normal upkeep and maintenance necessary to preserve, protect, and prolong the useful life of the improvements, but shall not include major repairs where the damage is due to floods, earthquakes, or other acts of God, or fire not the result of fault or negligence of the cooperator(s) as determined by the authorized officer.

5. IT IS FURTHER AGREED:

(a) Title to the said improvements in place, together with all labor and materials furnished by either party and used in the construction and maintenance thereof, shall be in the United States of America. The improvements may be removed, in whole or in part, during the term of this agreement or any extension thereof, by mutual consent of the parties or by direction of the authorized officer; such removal shall be made by the cooperator(s), or by the Bureau at its option. Upon removal of the improvements, any salvageable materials, after deducting an amount to compensate for the actual cost of removal, shall be available for distribution to the parties then subject to this agree-

ment in proportion to the actual amount of their respective contributions to the initial construction of the improvements. The parties shall take possession and remove their portion of the salvaged materials within one hundred and eighty (180) days after first notification in writing that such material is available; upon failure to do so within the time allowed, the materials shall be deemed to have been abandoned and title thereto shall thereupon vest in the United States.

(b) During the course of salvaging material, the United States assumes no responsibility for the protection or preservation of said material.

~~6. If the cooperator(s) shall assign or transfer any grazing permit or lease embracing the lands upon which the improvements are constructed or in connection with which they are used, the cooperator(s) shall include in such assignment or transfer his interest in this Cooperative Agreement. Before the assignee or transferee will be recognized as successor to the cooperator(s)'s interest hereunder, such assignee or transferee will be required by the authorized officer to accept an assignment of this agreement and agree to be bound by the provisions respecting the use and maintenance of the improvements.~~

7. The cooperator(s) use of the improvements will be in conformance with any special conditions, the grazing permit(s) or lease(s), and regulations of the Secretary of the Interior.

8. This agreement shall not accord to cooperator(s) any preference, privilege, or consideration with respect to any grazing permit or lease not expressly provided herein or in the rules and regulations governing such grazing permit or lease.

9. Items 2, 3, and 4(a) of this agreement may be modified or cancelled by written agreement of the parties, which agreement shall become a part hereof.

10. This contract is subject to the provisions of Executive Order No. 11246 of September 24, 1965, as amended, which sets forth the nondiscrimination clauses. A copy of this order may be obtained from the authorized officer.

11. This agreement shall remain in effect indefinitely from date of signature unless (1) sooner terminated by mutual written consent of parties, or (2) is terminated by the authorized officer after notice in writing because of the cooperator(s) default or violation, or (3) is terminated by the authorized officer after notice in writing because the improvements are not compatible with adopted land use plans or classification under the public land laws.

12. Special Conditions

1. Maintenance costs and labor will be shared equally between Cooperator and Bureau. If additional project construction is mutually deemed necessary, material costs and labor will also be shared equally.
2. Cooperator agrees to transport White River Springfish to Blue Link Spring.
3. Monitoring responsibilities will be shared equally between Cooperator and Bureau.
4. If the introduction is successful, Bureau will propose withdrawal from mining of metalliferous minerals of five acres surrounding the development.

COOPERATOR(S)

THE UNITED STATES OF AMERICA

X Sam Millazzo 2-8-85
(Signature) (Date)

State of Nevada

Sam Millazzo
Region I Supervisor
Nevada Dept. of Wildlife
(Signature) (Date)

District Carson City

(Signature) (Date)

By J. Matthiessen
(Signature)

(Signature) (Date)

Walker Resource Area Manager
(Title)

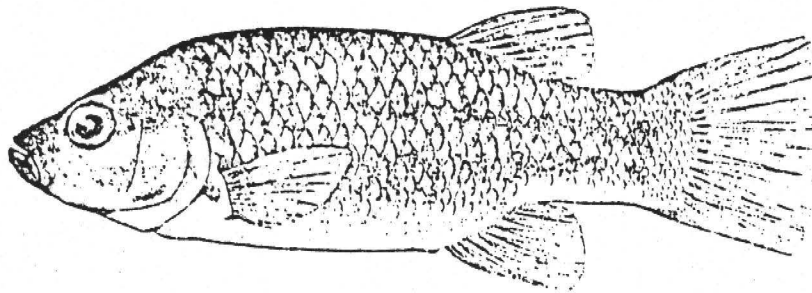
(Signature) (Date)

(Date)

FEB 7 1985

RELEASE SITE DESCRIPTION AND PLAN

BLUE LINK SPRING



White River Springfish, *Crenichthys bairdii*.

PROJECT: Blue Link Spring development as a Nevada endemic fish refugium for White River springfish.

RESOURCE AREA: Bureau of Land Management
Carson District

COUNTY: Mineral

Prepared by:

Mike D. Sevon
Fish and Game Agent II

RELEASE SITE DESCRIPTION AND PLAN

Project: Blue Link Spring development as a Nevada endemic fish refugium for White River springfish.

Resource Area: Bureau of Land Management - Carson District

County: Mineral

I. EVALUATION OF SITE

A. Blue Link Spring

This spring originates as an artesian flow on a ridge top, drains naturally downslope 93 feet to a valley bottom and flows down the valley bottom 80 feet to a man-made reservoir which measures 63 feet by 105 feet. On March 14, 1984, estimate flow from this warm water spring was 35 gallons/minute, however when the flow was volumetrically measured on September 14, 1984, the spring produced 19 gallons/minute. On this same date, flow through the reservoir measured 14.31 gallons/minute. (Attachment 1)

B. Location and Access

Blue Link Spring is located in Mineral County at the south end of the Pilot Mountains, four and one-half air miles southeast of Pilot Peak. (See Attachment 2 - Location Map) Access to the spring is provided via Highway 95 south from Mina, four miles to the turnoff to an unimproved dirt road, to a major drainage (wash). The road continues up the wash 1.8 miles then follows a secondary wash and along small drainages 5.6 miles to Summit Spring. Continuing northeast past Summit Spring 1.4 miles, an additional road branches to the south and continues 2.4 miles to Blue Link Spring. Flash flooding in the summer of 1984 has washed out and obliterated portions of the dirt road. Present access is restricted to four wheel drive vehicles. Travel time for the 18.1 miles of dirt road is no less than two hours.

Blue Link Spring is located at T5N, R37E, Section 5.

C. Water Quality

Water quality analysis taken on May 5, 1982 provides values for the following parameters:

Temperature	39°C
pH	7.6
Dissolved solids	231 mg/l
Chlorides	10 mg/l
Calcium	34 mg/l
Magnesium	14 mg/l
Manganese	.05 mg/l
Potassium	4.3 mg/l
Sodium	53 mg/l
Sulfate	40 mg/l
Bicarbonate	205 mg/l
Carbonate	0 mg/l

Water temperature at the spring maintains a constant 98-99 °F however the temperature cools considerably in flowing 173 feet to the reservoir, being influenced by ambient air temperature. Water temperature of the spring flow at the reservoir inlet was 64°F on March 14, 1984 and was 91°F on September 14, 1984. Surface water temperature of the reservoir was 62°F on March 14, 1984, with a surface temperature of 78°F on September 14, 1984.

D. Size of Water Pool

The reservoir, formed by an earthen dam which basically plugs the valley bottom, measures 63 feet by 63 feet by 105 feet, having a surface area of 4,410 square feet or .101 acres. Maximum pool depth is five feet with an average depth of three feet and a volume of .304 acre-feet. A three inch galvanized pipe allows flow through the dam and provides livestock water for an additional 200 yards down the drainage.

E. Suitability for an endemic fish release site

The remoteness of Blue Link Spring provides some distinct advantages to this spring as an endemic fish release site which includes infrequent human visitation and limited possibility for the introduction of exotic fish species. Water pool size and depth are favorable for springfish species. Water quality and temperature at the spring source are also favorable for all springfish species. The major physical improvement needed to make the reservoir suitable for establishment of springfish is to pipe the water from the spring to the pond to provide a constant supply of warm water (+80°F).

II. CURRENT USES

A. Water Rights

Available records indicate no water rights on file for Blue Link Spring. Efforts have been initiated for a legal water right survey after which the Nevada Department of Wildlife will file and purchase legal water right to Blue Link Spring.

B. Mineral Rights

Mining claims are filed for the area on and around the spring however, no mining activity has taken place in the recent past.

C. Livestock

Domestic cattle frequent the spring, the reservoir and the flow-through below the reservoir, as do numerous wild horses. The impact of livestock on the reservoir aquatic ecosystem is limited to grazing, trampling of bank vegetation and suspension of bottom sediments on the shallow west shoreline.

D. Recreation

No recreational uses are being made at this site.

III. OBJECTIVES OF THE PLAN

A. Improvement of Site

Initial improvement consists of the installation of a spring box and 170 feet of 1½ inch diameter ~~galvanized~~ ^{PVC} pipe. The pipe will be buried three feet and follow the ridge 110 feet, then traverse downslope 40 feet to the pond and extend 20 feet to the ponds center. The pipeline will provide water of a uniform temperature year-around to the pond. Due to the volume of water in the pond, a temperature gradient will be formed which will allow springfish to selectively occur within their preferred temperature range. (70°F to 98°F)

Installation of the pipeline will ^{reduce} ~~eliminate~~ the riparian corridor on the existing spring channel which is limited to tamaracks, annual forbs and watercress, however flow through the pond will be increased.

An optional physical improvement consists of installing barbed wire fencing around the immediate reservoir area. This would improve bank cover and promote establishment of emergent aquatics. Pond flow-through would assure continued water supply for wildlife and livestock.

B. Purpose of Experimental White River Springfish Release

Water quality data was submitted to Department of Wildlife fisheries biologists at the Las Vegas Office to make a determination of which endemic species were suitable for release in Blue Link Spring. A determination was made that the spring was suitable for all the Springfish species *Crenichthys*. The development of Blue Link Spring has proved to be very timely due to the dilemma of the White River springfish *Crenichthys baileyi grandis*. This species was eliminated at its original site, ~~Crystal~~ ^{Hiko} Springs, due to human developments and introduction of exotic tropical fish species. The only

known population is currently being held in a small pond at the University of Nevada at Las Vegas and survival of the sub species is dependent on finding an alternate site location.

At the present time, this species is listed on the federal register as threatened. However, the Desert Fishes Council has proposed legislation to place the species on the endangered list. It is doubtful that the establishment of the species in Blue Link Springs would reverse the endangered listing of *Crenichthys baileyi grandis*. In the opinion of the writer, it is more imperative to improve the survival of the species than to be overly concerned with the listing category of the species.

It is hopeful that in the event this species is established at Blue Link Spring, the type habitat, Crystal Springs, can be rehabilitated for reintroduction of *Crenichthys baileyi grandis*. Blue Link Spring would remain a permanent habitat for White River springfish and future development of lands in the vicinity of the spring would require assessment of potential impacts on the spring.

The Nevada Department of Wildlife will file a water right for the entire flow of the spring, however reservoir flow-through will remain available for livestock and wildlife use.

IV. MONITORING

A. Parameters Evaluated

Parameters to be evaluated prior to release include dissolved oxygen and water temperature gradients at selected locations in the reservoir adjacent to the pipeline outlet and at 10 foot intervals from the pipeline outlet.

At the time of introduction, a thermograph will be installed in the reservoir to monitor water temperature of the pond through the first winter and at three month intervals, the fish population will be monitored to determine survival for the first year after release.

If water temperatures remain adequate through the winter months, and successful reproduction occurs within 10 months, it will be evident the release was successful and the incidence of monitoring the population can be reduced to a semi-annual reconnaissance.

V. SPECIES MANAGEMENT

A. Expected Population

Based on visual observation of Railroad Valley springfish at Sodaville, the expected potential population estimate of White River springfish at Blue Link Spring would range between

80 to 120 fish. With further improvement of the pond by fencing out livestock and establishment of bulrushes or similar emergent aquatics, this population estimate could be increased to a range between 150 and 200 fish.

B. Introduction of Other Species

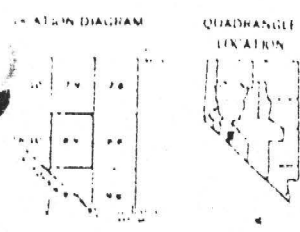
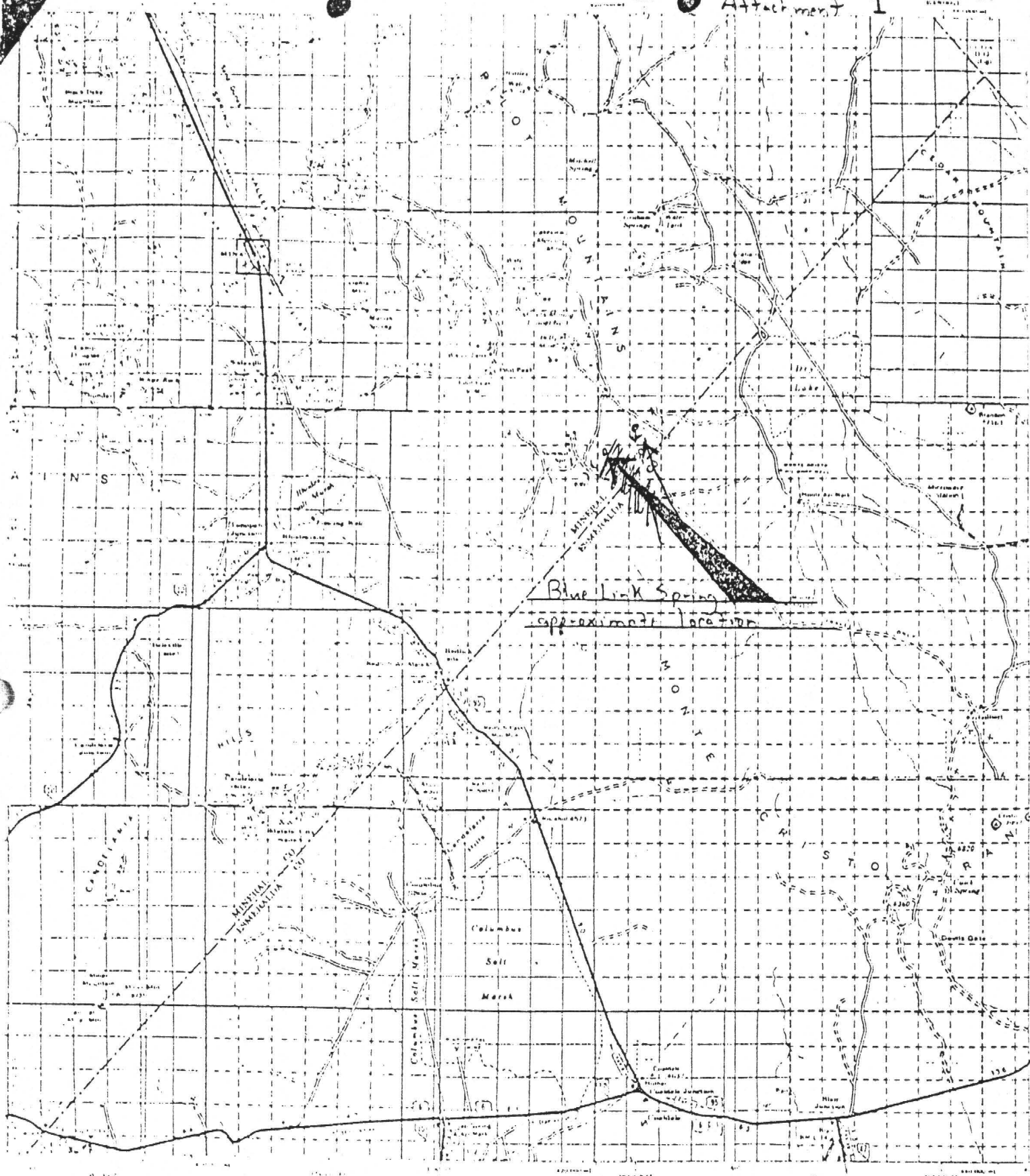
If White River springfish are successfully introduced, no other fish species will be considered for future introductions. However, if for some reason springfish do not survive, it would be premature to consider the project a failure as there are a number of other Nevada endemic fish which need protection which can be placed at Blue Link Spring. A tentative listing of these species includes Fish Lake Valley chub, Diamond Valley tui chub and Soldier Meadows dace.

C. Use of Established Population

After the establishment of *Crenichthys baileyi grandis* at Blue Link Spring, ideally the Crystal Springs type site located in Pahranaagat Valley in Lincoln County, Nevada can be rehabilitated and restocked from Blue Link Spring stock.

Prepared by: Mike D. Sevon
Fish & Game Agent II

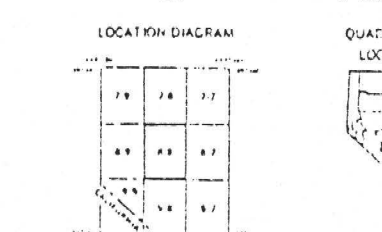
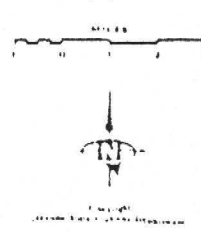
Date: September 17, 1984



GENERAL HIGHWAY MAP
QUADRANGLE 8-9
 LASMEIDA COUNTY 1970
 MINERAL COUNTY 1971

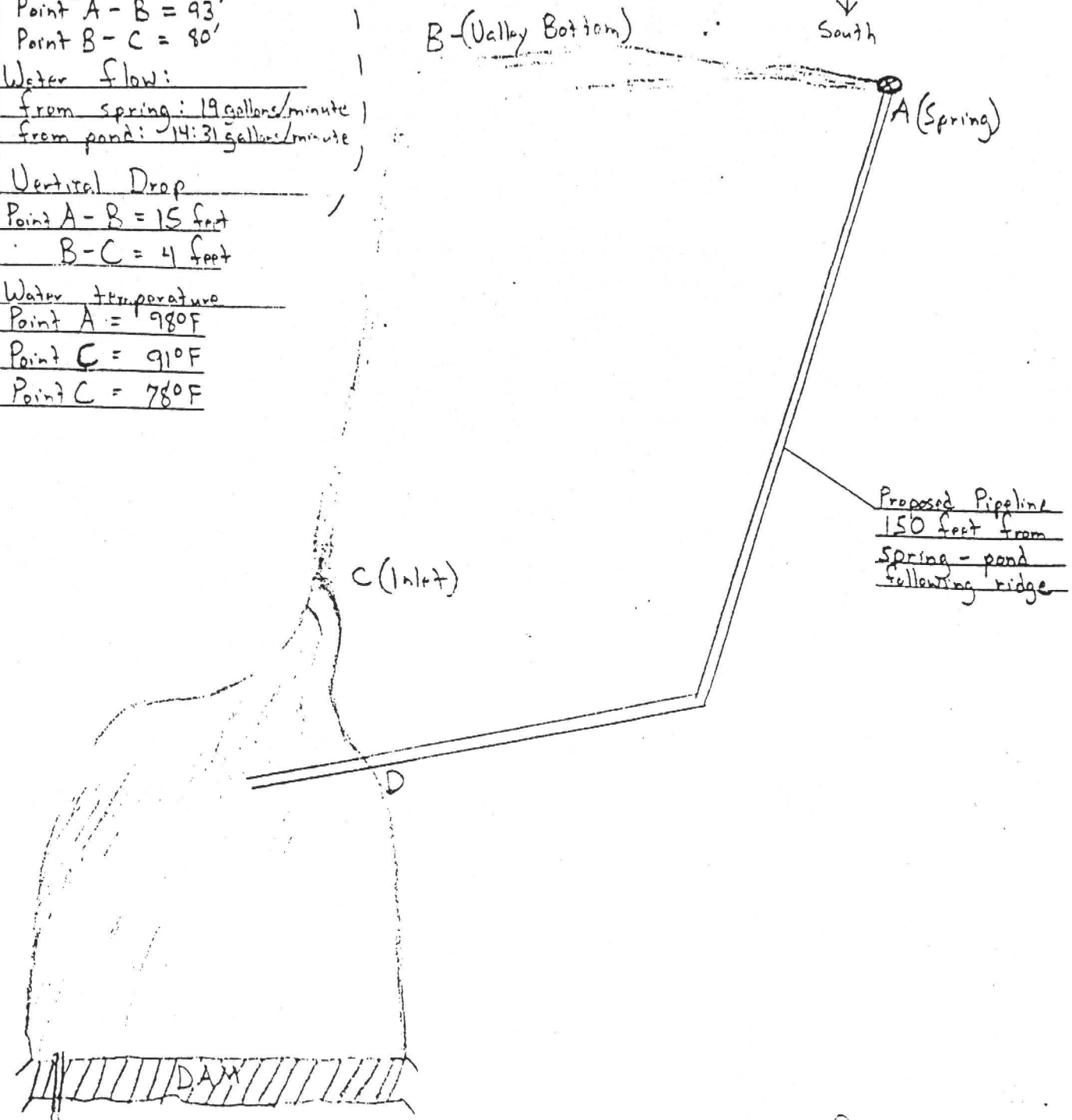
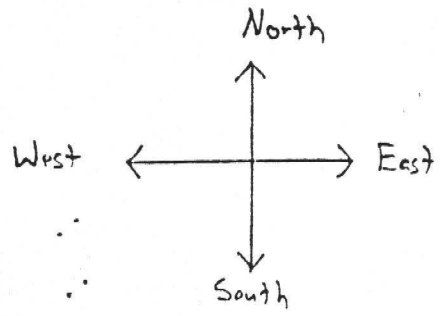
PREPARED BY
 NEVADA STATE HIGHWAY DEPARTMENT
 PLANNING SURVEY DIVISION

REVISIONS MADE BY
 U.S. DEPARTMENT OF TRANSPORTATION
 FEDERAL HIGHWAY ADMINISTRATION



Blue Link Spring - September 14, 1984

Pond Dimensions:
 Maximum depth = 5 feet
 Width Dam = 63 feet
 West side = 105 feet
 East Side = 63 feet
Spring channel
 Point A - B = 93'
 Point B - C = 80'
Water flow:
 from spring: 19 gallons/minute
 from pond: 14:31 gallons/minute
Vertical Drop
 Point A - B = 15 feet
 B - C = 4 feet
Water temperature
 Point A = 98°F
 Point C = 91°F
 Point C = 78°F

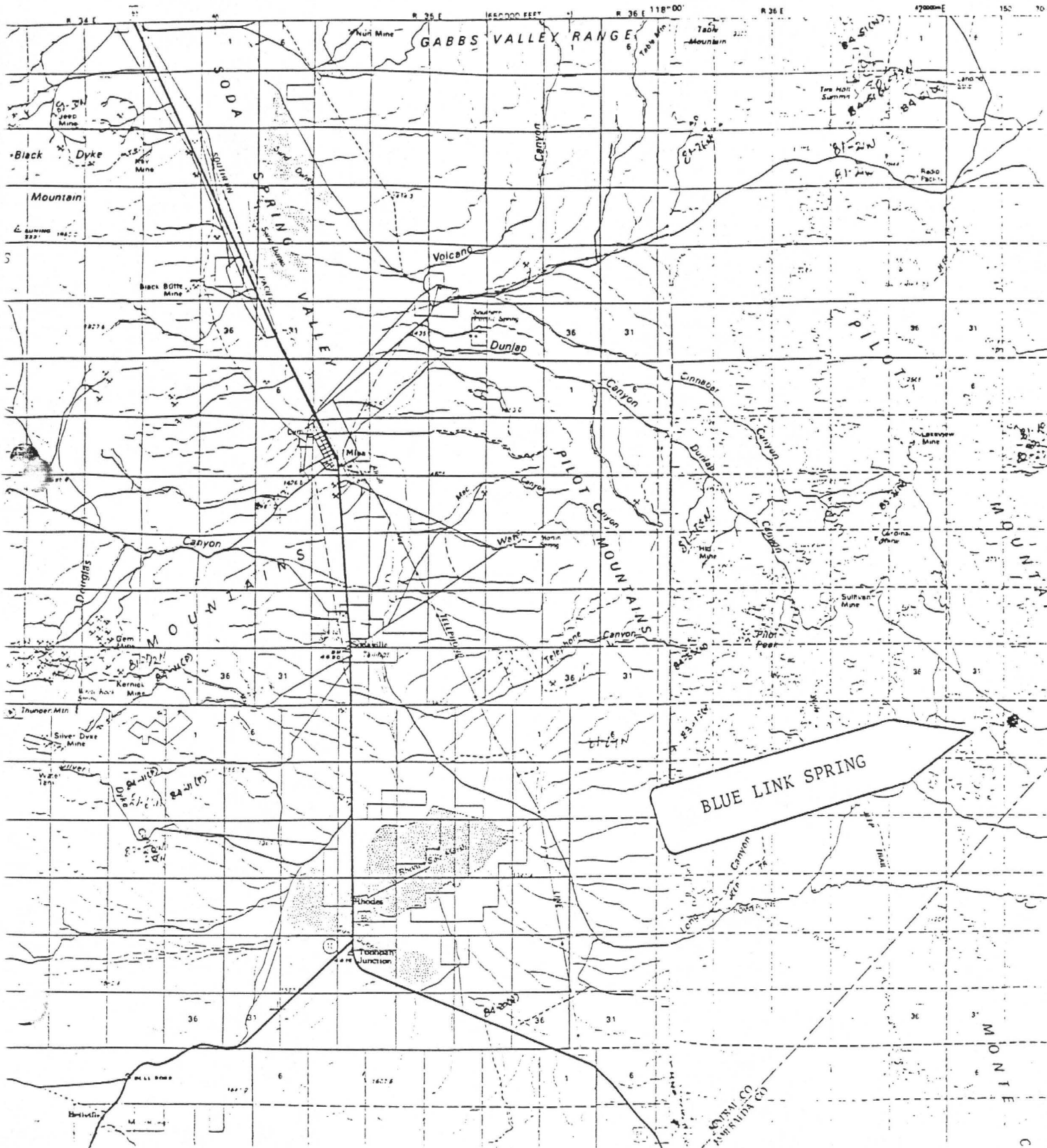


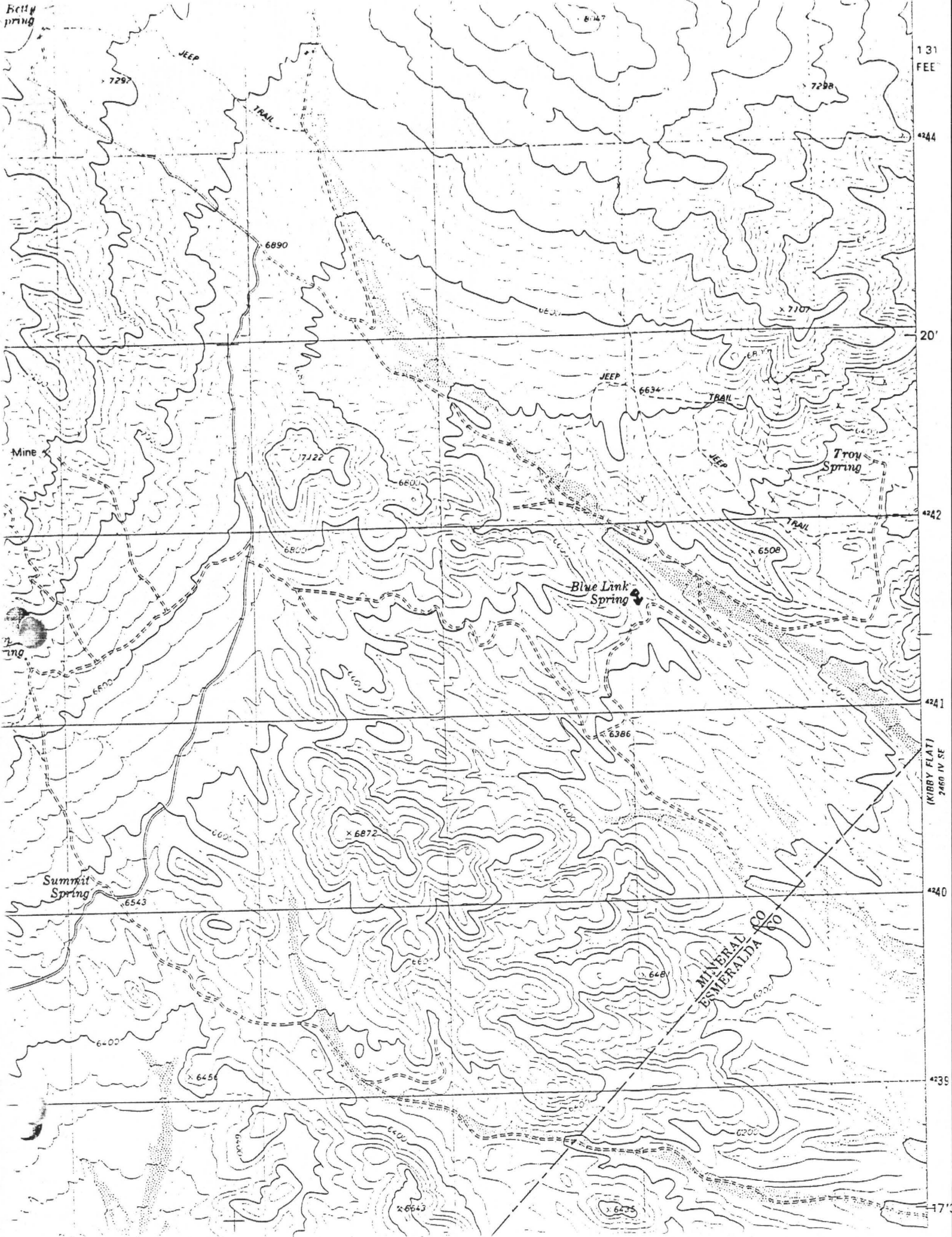
Scale 1" = 30 feet

EXCELSIOR MTN. QUADRANGLE
NEVADA-CALIF.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

1:100 000-SCALE SERIES (PLANIMETRIC)





GABBS VALLEY RANGE BIGHORN SHEEP
REESTABLISHMENT RELEASE PLAN

Introduction

This Release Plan was written to meet the Bureau of Land Management's (BLM) planning and habitat management responsibilities in support of the Nevada Department of Wildlife's (NDOW) request to reestablish desert bighorn sheep (Ovis canadensis nelsoni) into the North Gabbs Valley Range north of Luning, Nevada. The release of native endemic species into suitable habitats in this area is supported by the Walker Resource Management Plan and is further noted in the Management Decisions Summary. This document was prepared in consultation with BLM and will be incorporated into the Mina Habitat Management Plan.

Due to its trophy aspect, the desert bighorn is a highly sought after game animal. This is illustrated in Nevada's trophy application process where applications generally exceed available tags by a 20:1 margin. From a non-consumptive perspective this species has demonstrated its aesthetic appeal through many avenues not the least of which is the species' official designation as Nevada's state animal.

Bighorns are sensitive to land use actions and as such the BLM along with the NDOW have given the species a high priority for joint management. Successful reestablishment of bighorn sheep has occurred throughout the state, most closely within the Pilot Mountains adjacent to the southern portion of the Gabbs Valley Range. Recent releases (1986) of bighorn sheep in the Wassuk and Excelsior Ranges await further monitoring before a successful reestablishment can be concluded for these areas.

During May and June 1982 a joint inventory and evaluation of suitable bighorn habitat was conducted on five areas within the Walker Resource Area by personnel from NDOW and BLM. These areas were previously identified by NDOW as having potential for reestablishment of bighorns. The habitat evaluation method used was a modification of Monason and Sumners habitat rating system. Ratings for the north Gabbs Valley Range were lower than values considered to be important to bighorn sheep, but this score would be higher now with recent and proposed water source improvements in effect. Specific actions necessary to improve the release site prior to the release are described under the section entitled Release Site Preparation.

The reestablishment of bighorn sheep, a native wildlife species, into its former habitat is categorically excluded from the National Environmental Policy Act requirement to prepare an environmental assessment or impact statement. Pending release site clearance, availability of release stock and successful trapping efforts by NDOW, the release will take place as early as January of 1988.

Historical Background

Prior to the advent of European man into the western portion of the continent, bighorn sheep of various subspecies probably occurred in all of the major mountain ranges of Nevada. Petroglyphs, archeological findings, and documented observations support the conclusion that population(s) of desert bighorn sheep were contiguously distributed between the north end of the Gabbs Valley Range through the south end of the Monte Cristo Range in Esmeralda County with populations in the adjacent Gillis, Wassuk, Lone Mountain and Silver Peak areas.

The decline and ultimate extirpation of bighorns in Mineral County can be attributed to the activities of European man. Most bighorn populations met their demise during the mining boom years in the early part of this century. Although many sheep fell to illegal harvest (hunting of bighorns was prohibited in Nevada from 1909 - 1952), the greater percentage was lost due to unrestricted livestock grazing practices. Overgrazing and competition for forage and water were two important factors as was the transmission of deadly diseases and parasites.

Under the direction of Commission Policy 21 which takes its guidance from NRS 501.181, the NDOW is pursuing an aggressive statewide effort to reestablish three subspecies of bighorns into suitable habitat throughout Nevada. These efforts are closely tied to land management policies established by the BLM and USDA Forest Service. Within adjacent Esmeralda County, NDOW reestablishment and/or augmentation efforts have resulted in the development of viable bighorn populations, all of which support limited harvests today. This release proposal is intended to assist with the eventual reestablishment of the contiguous population previously mentioned.

Release Site Description

The actual release site is located in Wildhorse Canyon, a fairly long canyon east of Win Wan Valley and approximately 21 air miles north-west of Luning, the nearest community (Appendix I). Topographically, the area is characterized by rolling hills interspersed with steep canyons. Many of these canyons are quite rocky and thus offer excellent escape cover and suitable lambing grounds (Map Appendix II, Photos-Appendix III). Evaluations within the release area range from 5400 to 7400 feet. At approximately 9-10 square miles, the release area is somewhat small in size. It must be reiterated that this is only a point of release from which population expansion throughout the range is an ultimate objective.

The vegetation in the area is typical of the Great Basin in a low precipitation zone. Within the release area exists a predominant midstory consisting of bigsage, Nevada joint fir, horsebrush, greasewood, saltbrush, rabbitbrush and some cliffrose. Many of the drainages support riparian communities dominated by willow with some cottonwood and serviceberry present. An overstory of pinyon-juniper occurs at higher elevations. Perennial grasses are present but account for only a small percentage of the total vegetative profile. Several

annual grasses are also present but their frequency is dependent upon precipitation patterns. Equally dependent are the annual forbs, which in some places are diverse but never impressively abundant. If horse numbers are any indication, adequate forage exists to support a population of sheep.

Water distribution is adequate during typical precipitation years and can be considered excellent if high precipitation receipts allow for greater flows from ephemeral water sources. All water sources and their characteristics are illustrated in Appendix II. Although Badger Spring is noted within the anticipated range of occupation its significance for bighorn is low since the sheep will most likely occupy the steep rocky terrain upstream from Snow Spring or the entirety of Wildhorse Canyon. Photographs of some of these water sources are present in appendix III. Reliable presence of water will be at the Wildhorse guzzler and at Snow Spring. Free water has been observed in mid-summer in Wildhorse Canyon and the drainages associated with the other natural water sources. Water improvements are noted in the section entitled Release Site Preparation.

This area lies within the rain shadow of the Wassuk Range and as such is subject to low precipitation totals during the year. The bulk of this precipitation falls in the form of snow. Late spring and summer precipitation can often be intense, resulting in flashfloods due to the soil's poor water retention qualities. Average January temperatures recorded at Mina include a daytime high of 45° and an overnight low of 18°, while July averages are 96° and 60°, respectively. Given the higher elevation of the release area, these temperature ranges are most likely lower.

Predation by mountain lions is not a major concern at this site. Although the area is occupied by mule deer, numbers of this important prey base considered to be too low to support lions on an annual or seasonal basis. As mentioned previously the area is occupied by horses. Densities appear higher here than in most other areas in the Carson District. In 1984 the Bureau counted 450 horses in the Gabbs Valley Subunit out of a total of 1081 horses counted in the entire Pilot Mountain wild horse herd area. The Walker Resource Management Plan identifies the appropriate management level for this herd area at 397 head. Other wildlife in the area include bobcat, gray fox, kit fox, and coyote, the harvest of which is minimal, and chukar and mourning dove, which supporting light harvests during high density years. Numerous nongame species also occur in the area.

Release Site Preparation

With the construction of the Wildhorse guzzler in 1984 by the BLM with the assistance of Mineral County sportsmen, a permanent reliable water source was established within the release area. A second water source that appears to be very reliable in Snow Spring. This water source is heavily utilized by horses to the point that severe degradation is occurring. It is recommended that this water source be fenced in a fashion that would impede horse use while still allowing

unrestricted use by bighorn, deer, chukar and nongame animals. Though excluding horses, it is probable that spring flows and riparian quality downstream would benefit and thus water would still be available to horses.

Vehicular access into the release area is achieved through three non-maintained roads. Road 1 enters Wildhorse Canyon and extends beyond the guzzler by approximately one-fourth mile. This is the most desirable approach from which to release animals. A release near the guzzler increases the chances of the release complement's imprinting to that particular spot, a scenario that is most desired. However, the road into the area would require considerable improvement in order for the "ewe haul" to reach the guzzler and turn around at that spot. Road 2 is a spur road created by miners. It originates out of Win Wan Valley and terminates on a canyon rim approximately one-half mile southwest of the guzzler. Road 3 breaks off of the main road east of the release site and extends into the confluence of the canyons containing Snow and Badger Springs. It is in good enough condition to allow travel of the "ewe haul", but the sheep would have to be released downhill. The tendency of released bighorns is to immediately seek the nearest escape cover. Escape cover immediate to this release point is somewhat far from water. Some maintenance of the main road is required since it has been washed out in some places. This release point is somewhat far from the guzzler and as such reduces the chances of the release complement's immediate imprinting to the topography surrounding the guzzler.

In any case, the Mineral County Roads Department will be requested to perform some road maintenance or improvement prior to the release date. Requests such as these have been enthusiastically served in the past. Selection of a transport vehicle will be made at the trap site and will be dependent upon a last minute review of road conditions leading into the release site.

As previously stated, competition for forage and water from horses is a concern. However, these concerns are most likely to diminish following the gather planned for this area in the next fiscal year.

Release and Monitoring Plans

The stock source for this release will be derived from the population existing on Lone Mountain, Esmeralda County. This population supplied release stock for two transplants in 1986 (refer to Rose Creek Canyon, Wassuk Range and Storm Canyon, Excelsior Range release narratives). If, in the opinion of NDOW biologists the Lone Mountain population can presently support an additional removal of 20-25 sheep then the capture operation will take place in January 1988. If these biologists surmise that the population needs an additional year of recruitment prior to a removal of that magnitude, then the operation will occur in January of 1989. In either case, logistics and capture methodology as described in the aforementioned release narratives will again be employed.

The preferred composition calls for a minimum of two rams aged less than three years, 10 adult ewes and the balance consisting of yearlings or lambs of either sex. One ram and two adult ewes will be fitted with radio collars. All sheep will have colored all-flex tags affixed to their ears.

Monitoring will be heavily dependent upon aerial survey. The area is not particularly accommodating to the biologist conducting a ground survey. Random sightings by individuals will be sparse since the area is remote and doesn't have much human activity. Public notification in the form of a Departmental and/or Bureau news release combined with a solicited article in the Mineral County Independent should occur. It has never been determined if such notification is beneficial in the form of public awareness or detrimental by directing the attention of poachers. Composition surveys, gathered with the use of NDOW's helicopter, will be scheduled annually. Monitoring efforts will be recorded and submitted in the form of a survey narrative to both agencies.

Population Augmentation

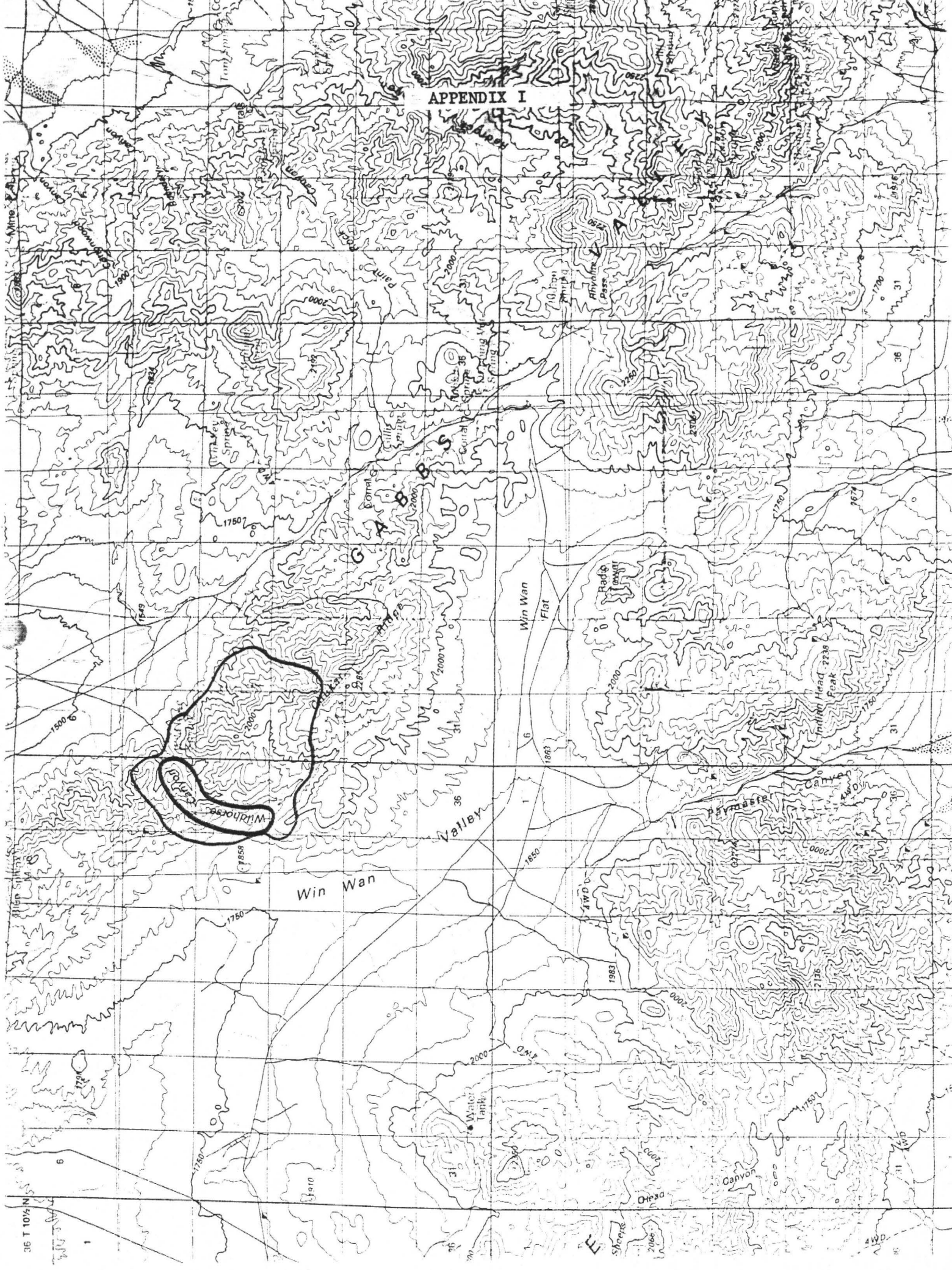
Augmentation of recently released populations of bighorn sheep is generally limited to the addition of other rams. These augmentations have occurred in the past when surplus rams captured in the River Mountain or Black Mountain populations of Clark County were available. Many other sites are available to accommodate releases of desert bighorns. For this reason, augmentation of prior releases has little priority in the Department's overall big game release plan. Augmentation at this site will only occur if the initial release totaled ten animals or less.

Given the remarkable exploratory behavior exhibited by released bighorns, there is a chance that some or all of the release complement may not imprint to the release area. Potential bighorn habitat occurs in the Mystery Ridge vicinity to the east, the Redrock Canyon to the southeast and the Gillis Range to the west. There is even a chance that some of the released bighorns could merge with the Pilot Mountain population. However, it has been the Department's experience that almost all released bighorns imprint to the area intended for them, even following exploration periods.

Potential Conflicts

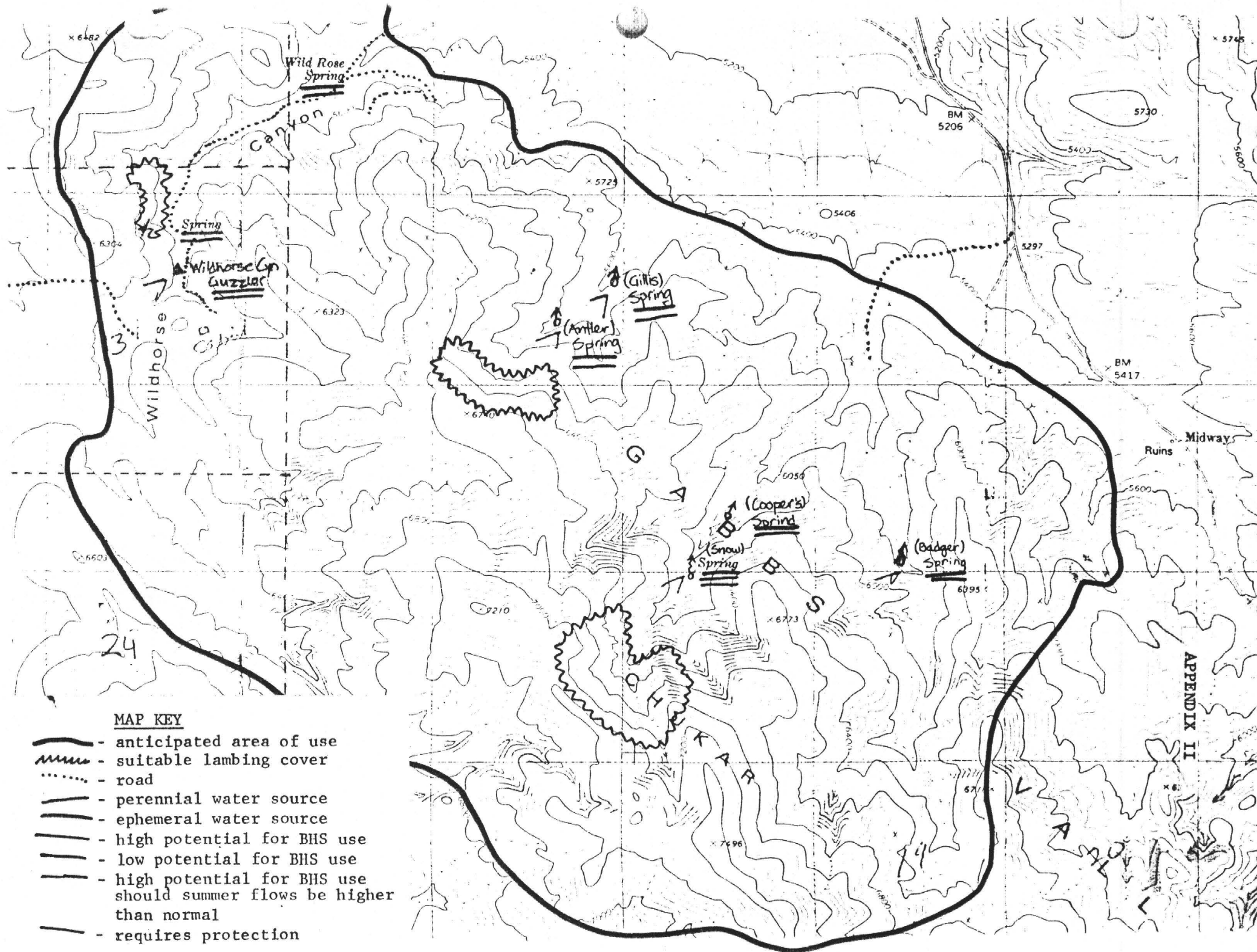
The release of bighorns into this area is in concert with current land use planning and is not in conflict with current land use practices. However, the reestablishment objectives can only be met if conflicting land uses do not arise. Conflicting land use practices include a change in the grazing permit that authorizes domestic sheep, intensified mining activity and competition for forage and water with horses. Protection of important or critical habitat components such as lambing areas and water sources is necessary to ensure herd survival. These issues will be addressed in the Mina HMP and Pilot Mountain AMP.

APPENDIX I












36 T 10 1/2 N

4WD



MAP KEY

-  - anticipated area of use
-  - suitable lambing cover
-  - road
-  - perennial water source
-  - ephemeral water source
-  - high potential for BHS use
-  - low potential for BHS use
-  - high potential for BHS use should summer flows be higher than normal
-  - requires protection

APPENDIX II

SUNRISE FLAT ANTELOPE REESTABLISHMENT RELEASE PLAN

Introduction

This document was written to comply with the Bureau of Land Management's planning habitat management responsibilities in support of the Nevada Department of Wildlife's (NDOW) request to reestablish a population of antelope (Antilocapra americana) into Gabbs Valley Range area in the vicinity of Sunrise and Calavada Flats. The release site is located approximately 7-8 miles northeast of Luning (Appendix I). Releases of antelope into suitable habitat are supported in the Walker Resource Management Plan and in the Walker Management Decisions Summary. This document will be incorporated into the Mina Habitat Management Plan.

Antelope as a game species has inherent economic and recreational value. Preliminary figures from NDOW's Economic Value of Wildlife study indicate that the average antelope hunter spends approximately \$477.00 per hunt or \$79.00 per hunt day pursuing antelope. Reestablishment of antelope is supported by the Mineral County Commissioners, the Mineral County Advisory Board to Manage Wildlife and local sportsmen.

The Sunrise Flat and Calavada Flat areas have been jointly evaluated during several field examinations during all seasons. Water inventory was conducted by the Carson District during 1981-1982. Additional monitoring of these water sources were jointly accomplished in May, 1986, and again by this writer in June, 1987. Water inventory records are provided in Appendix III and additional comment on water sources is provided in the section entitled Release Site Description.

The release of antelope into the Sunrise Flat release area is currently the seventh priority among antelope releases slated for FY 1988-89 according to NDOW's Big Game Reestablishment and Transplant Plan. Pending approval of this plan and successful trapping efforts by NDOW, the release of 50 antelope is anticipated for January 1989.

Historical Background

Hall (1946) suggests that antelope "originally (occurred) probably over all parts of the state below the Transition Zone; now restricted to several separate areas". Extirpation of the species from many areas within the state occurred with the advent of European man. It is commonly accepted that broad vegetative changes brought on by unrestrictive grazing practices, particularly of domestic sheep in the past century and early in this century, was a major contributor to the disappearance of antelope in many parts of Nevada. Competition for forage, water, and space was too intense for native species. In addition, domestic livestock transmitted several parasites and diseases to wild populations to wild populations of endemics. Over-hunting by European man also had a contribution to the demise of antelope in many areas.

Under the direction of Commission Policy 21, which is guided by NRS 501.181, NDOW is pursuing an aggressive reestablishment plan for antelope and other endemic wildlife species. Resource planning by the federal land management agencies in tandem with trapping and transplanting efforts by NDOW have led to the reestablishment of antelope in many formerly occupied areas in the state.

Release Site Description

Sunrise Flat extends roughly from Volcano Canyon, T7N R35E S1, in the south toward Buffington Spring, T8N R35E S10, in the north. Elevations range from 6630 feet on the valley floor to 7000 feet in the pass between Sunrise Flat and Calavada Flat. It is anticipated that antelope will prefer this area as summer range. Appendix I illustrates the anticipated summer, winter and potential alternate areas to be occupied by the released antelope. Refer to Appendix VI for a photographic panorama of Sunrise Flat.

To the west, mountains rise gradually out of the flat, then abruptly descend into Soda Springs Valley. To the south, Sunrise Flat tapers into Volcano Canyon which descends into a confluence with Dunlop Canyon and into Soda Springs Valley. To the east, mountains rise sharply. This steep terrain effectively hinders herd movements out of the flat in three directions. Seasonal herd movements out of Sunrise Flat will occur to the north where gentle rolling hills separate Sunrise and Calavada Flats.

Calavada Flat, also pictured in Appendix VI tails from this pass to the north and northwest (refer to map). The elevation on the floor is approximately 6100 feet and is ringed by mountains which rise from the 6400 ft. elevation. Access to the Petrified and Finger Rock Wash area to the east can be gained over Petrified Summit. The terrain in this area will not impede herd movements. Further to the northeast is the large expanse of Gabbs Valley. Although sightings in these areas may occur as a result of exploration by released animals, imprinting to these areas is not anticipated since forage and water are more readily available in Sunrise and Calavada Flats. Slight potential for imprinting occurs north of Mount Ferguson where water and forage conditions may support antelope, but again the Sunrise and Calavada areas have more to offer. Collectively, Sunrise Flat and Calavada Flat offer approximately 24 square miles of suitable habitat for antelope.

Vegetation on Sunrise Flat offers diversity suitable for antelope. Sagebrush height is approximately 12--25 inches tall on the floor and somewhat shorter along the foothills. Grasses are not particularly diverse and abundance is variable. White sage is abundant on the floor forming perhaps 100 monotypic acres. Forbs did not appear to be abundant during the periods that field examinations occurred. Some buckwheats and globemallow occur in Sunrise Flat. In the foothills along the edge of the flat juniper, mormon tea, rabbitbrush, spiny hopsage and greasewood can be found. Pinyon is interspersed at higher elevations.

Calvada Flat has a good diversity of the shrub component, including in order of abundance sagebrush, greasewood, rabbitbrush and spiny hopsage. Sagebrush here also offers suitable kidding cover with plants averaging 20 inches on the flat and 14 inches on the foothills. Grasses include ricegrass, needlegrass, cheatgrass and poa. Grasses comprise approximately six percent of the vegetative cover. There was only a trace of forbs during a joint field examination, but following favorable precipitation receipts in May and June of 1987, forb diversity and abundance appeared to be greater. Forage plants increase in abundance and diversity in the vicinity of most of the available water sources in the release area.

Water sources are limited in the release area and some of the water sources are unreliable. These water sources are mapped in appendix II and photographs taken on June 4, 1987, are provided in appendix IV. Bureau water source inventory forms for these water sources are provided in appendix III. An NDOW evaluation of the Sunrise guzzler is provided in appendix IV. Water on Calavada Flat is not available except at Lower Petrified Spring which is tucked into the foothills at the north end of the flat. This location along with the facts that it is in a less suitable and less watered portion of the release area suggest that Lower Petrified Spring may not be used by antelope. However, if the antelope key in on the north end of Calavada, then the spring will be well used.

Water source protection is required at Buffington, Stone Cabin, Lower Petrified and York Springs in that priority. Repairs to the water delivery or water storage improvements are necessary at Buffington, Lower Petrified and York Springs again in that priority. Dunbarton Spring also requires some repair but since it most likely will not be used by antelope it is not given any priority. The Sunrise well and water tank are in disrepair and will be of no value to antelope unless the funding is set aside for it. At this point this project is not necessary. A recently dug catchment (1986) will be very valuable to antelope as long as it holds water. The NDOW supports the creation of additional reservoirs. However, when water demand is highest in the hot summer months, this reservoir will normally be dry. The BLM's Sunrise Guzzler was originally designed for upland game use. With some additional materials this guzzler can be modified to provide water for antelope. The NDOW will provide apron and apron support material, fencing material and labor to complete the modification. Two tanks, plumbing material and some labor should be the responsibility of the bureau, additional labor can be provided through Mineral County sportsmen groups.

A typical Southern Great Basin cool desert climate is recorded at Mina (elevation 4546 feet) located 10 miles to the southeast. Average January daytime temperatures recorded there are a daytime high of 45°F and overnight low of 18°F, while July averages are 96 and 60 degrees, respectively. Snow commonly falls at upper elevations from November through February. It is expected that in a typical year snow accumulations will force the animals out of Sunrise Flat down to Calavada Flat or even as far as the Gabbs Valley.

Similar habitat components are present in Ione Valley directly due east approximately 20-25 air miles. Ione Valley may have more water sources available and has a much larger expanse of suitable habitat, but the vegetative profile is similar. This release is NDOW's highest priority for the current fiscal year. The potential of individuals from either released herd emigrating to the other herd is viable considering the remarkable exploratory behavior exhibited by transplanted antelope. Suitable antelope habitat can be created with the development of water sources in Win Wan Valley approximately 20 air miles to the northwest. Although rough terrain must be crossed in order for herd mixing to occur here, the potential is there nonetheless.

Release Site Preparation

Aside from the improvements to the water sources mentioned in the previous section, little preparation of the release site is necessary. Some grading of the road leading into Sunrise Flat may be necessary should its current condition deteriorate. The Mineral County Public Works Department has been particularly supportive in this regard in the past.

Release and Monitoring Plans

At this point, the most likely source for release stock is the large antelope herds present in northern Washoe County. Presently, trap sites exist on either side of the Granite Mountains and an additional permanent trap site is scheduled for construction in the Duck Flat vicinity. Trapping in these areas generally takes place in the winter months when concentrations are highest, so the release will most likely take place during that time period. The potential for a September capture on the Sheldon exists as well. However, for the purposes of this document the assigned target date for the release is January 1989.

The released antelope will most likely be marked with allflex ear tags. Some high visibility collars may be employed as well. It is not likely that radio collars will be fitted on any individuals within the release complement.

Monitoring will be heavily dependent upon individual random sightings by federal, state and county personnel and the public. Hopefully, an adequate publicity campaign will proceed the release so that the public will be looking for the animals and will know who to contact should they make a sighting. Fixed-wing surveys will take place as often as possible using Department and contracted aircraft. Survey narratives will be filed with the Department and the Bureau.

Population Augmentation

There are no plans for population augmentation at this time. A new unit will be created to separate this herd out of the currently hunted trophy area 20. This will allow for population expansion free of legal harvest. As previously mentioned, emigration and immigration among this and adjacent herds is a real possibility so expansion or depletion of

the herd may be influenced in this respect. In a worst case scenario, the herd may completely abandon the release area in favor of other areas such as Stewart or Ione Valleys. Should this happen, no further attempts to reestablish antelope on Sunrise Flat shall occur. Should individuals of this release complement select other areas within this biologist's area of responsibility, then augmentation of those newly selected areas may be considered.

Potential Conflicts

Some conflict with horses can occur should horse numbers increase to the point that further degradation of water sources occurs. The Bureau has scheduled a gather for the Gabbs Valley/Pilot Range for the next fiscal year. Competition for forage of cattle is not a foreseeable problem. A new AMP for this grazing allotment is under draft. Practices outlined in the draft should result in little adverse impact to the range. Measures designed to protect and/or improve water sources should prevent further degradation by cattle.







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Biologist

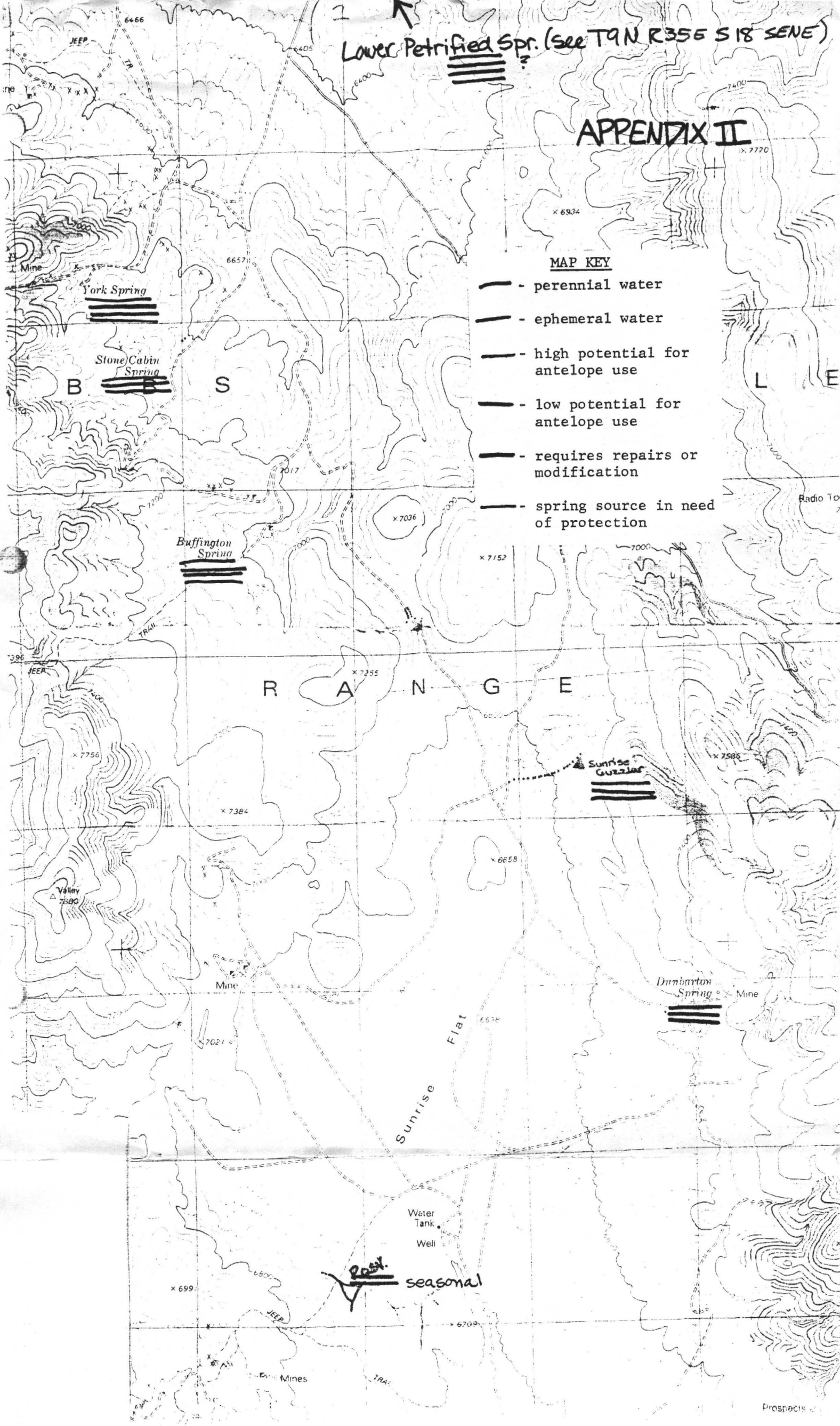
Dated: July 1, 1987

Lower Petrified Spr. (see T9N R35E S18 SENE)

APPENDIX II

MAP KEY

-  - perennial water
-  - ephemeral water
-  - high potential for antelope use
-  - low potential for antelope use
-  - requires repairs or modification
-  - spring source in need of protection



~~perennial~~ seasonal