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UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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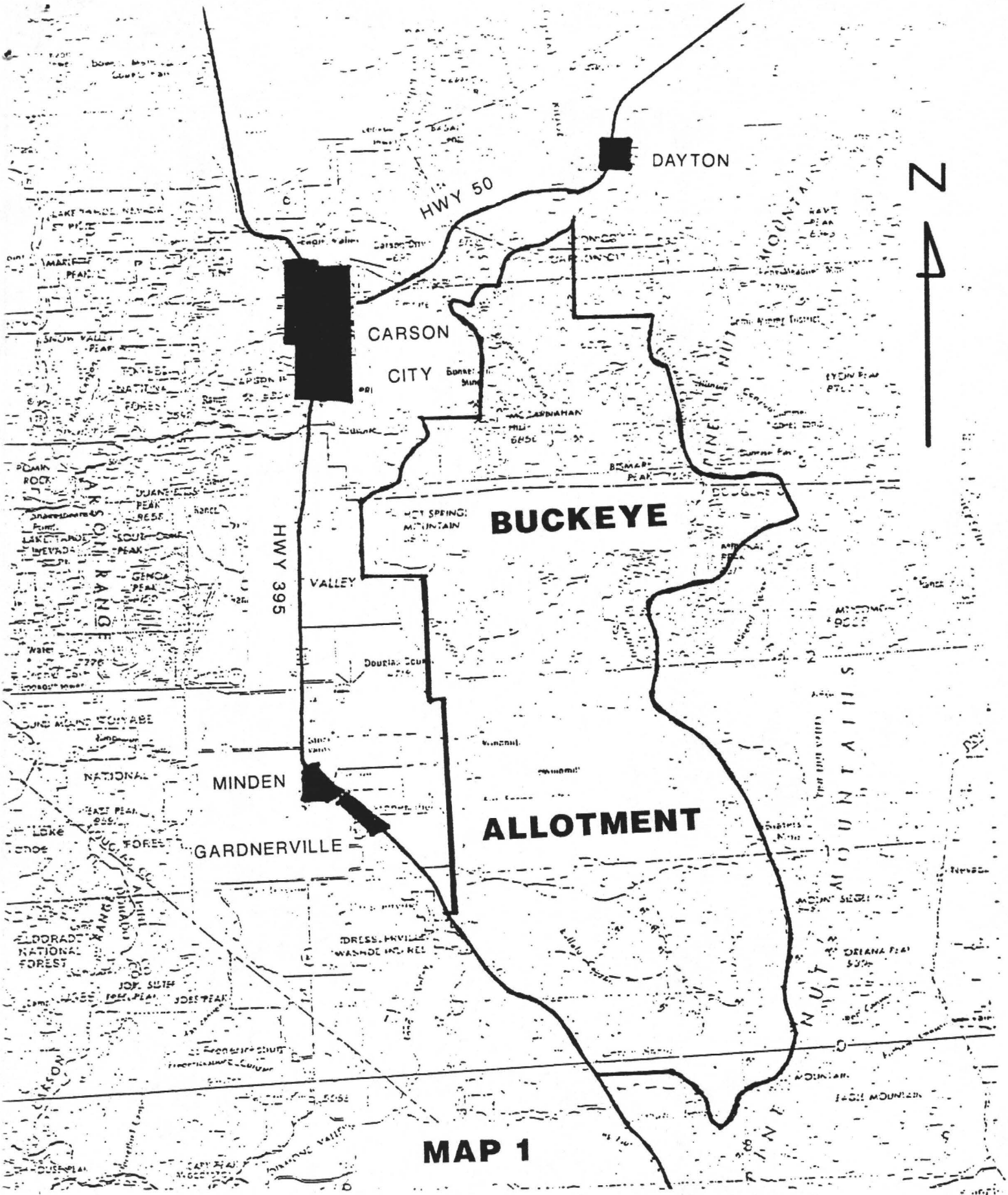
BUCKEYE ALLOTMENT EVALUATION

DECEMBER 13, 1994


DAYTON
HWY 50
CARSON
CITY
HWY 395
BUCKEYE
VALLEY
MINDEN
GARDNERVILLE
ALLOTMENT
MAP 1
N
Scale 1:250,000
5 0 5 10 15 20 Statute Miles
5 0 5 10 15 20 25 30 Kilometers
5 0 5 10 15 Nautical Miles

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BUCKEYE ALLOTMENT EVALUATION

I. Introduction

A. Purpose and Need

In June, 1992, the Bureau of Land Management issued its *Strategic Plan for Management of Wild Horses and Burros on Public Lands*. One of the objectives is to establish initial Appropriate Management Levels (AMLs) for all herd areas by 1995. In order to establish an AML for wild horses in the Pine Nut Herd Management Area (HMA), it is necessary to evaluate resource management within all the allotments included within the HMA. One of these is Buckeye Allotment.

Additionally, the Buckeye Ranch, formerly a sheep ranching operation, has requested to change to a cattle grazing allotment. So we need to evaluate the suitability of a change in kind of livestock on the Buckeye allotment.

Specifically, the purpose of the allotment evaluation process is to determine if the current and proposed grazing practices are consistent with attainment of the Walker Resource Management Plan (RMP) and allotment specific objectives for the Buckeye Allotment. If current or proposed grazing practices are not consistent with attainment of these objectives, then appropriate changes in management needed to meet these objectives will be identified, and appropriate change in management implemented.

B. Allotment Name and Number: Buckeye (03509)

C. Permittee: Buckeye Ranch

D. Evaluation Period: 1975 (completion of Management Framework Plan and establishment of first photo trend plots) to present.

E. Selective Management Category: "I" (This is an allotment we intend to Improve).

II. Initial Stocking Rate

A. Livestock Use

1. Preference

Preference (AUMs)			Kind of Live-stock	Period of Use	Percent Federal Range Use
Active	Suspended	Total			
4973	189	5162	Sheep	04/15 - 10/20	96%

2. Historical and Current Operations

The area of land which has become the Buckeye allotment was the historic grazing area of the Dangberg Ranch, which began livestock operations in the area around 1870. Adjudication notes from 1936 show that the Dangberg Ranch owned over 40,000 acres of private land, leased 26,000 acres of Indian and Railroad land, and had a priority for 1500 cattle and 2000 sheep running on federal range from May 10 to October 10. This resulted in a priority for 6452 Animal-Unit-Months (AUMs) of grazing of public land, of which 4152 AUMs were within the Buckeye allotment.

In 1960 the Dangberg Ranch acquired R.L. Pruett's 605 AUMs grazing in the Jacobsen Ranch allotment, and this Jacobsen Ranch allotment was combined with the Buckeye resulting in a revised preference of 4757 AUMs. This 4757 AUMs preference was then adjudicated to the Dangberg Ranch in 1963 as a result of the 1956 and 1963 range surveys.

In 1966 the Dangberg Ranch acquired the Fish Springs allotment privileges (270 AUMs active, 189 AUMs suspended) from Hussman Land & Livestock. Fish Springs was an unfenced "area of use" within the Buckeye allotment boundaries, so with the Dangberg acquisition of the grazing privileges the Fish Springs allotment grazing use was authorized in conjunction with the Buckeye allotment and the total privileges for the two allotments was now 5027 AUMs active preference, 189 AUMs suspended.

The Buckeye Ranch, owned by Donald Bently, acquired the base property, along with the grazing privileges, for the Buckeye and Fish Springs allotments in 1978. The Fish Springs allotment continued to be listed as a separate allotment until 1982 when it was combined with the Buckeye allotment, thereby acknowledging on paper what was reality on the ground. So in 1982 the newly enlarged Buckeye allotment grazing privileges became the total of the former Buckeye and Fish Springs allotments: 5027 AUMs active preference, 189 AUMs suspended.

In 1985 the Bureau of Land Management transferred 300 acres of public land, with 31 AUMs, to Douglas County for public purposes. This reduced Buckeye allotment privileges to 4996 AUMs. And in 1989 the public land on the west side of Highway 395, some 740 acres and 23 AUMs, was transferred to the U.S. Forest Service, further reducing the allotment privileges to the present 4973 AUMs.

B. Wild Horse and Burro Use

1. Herd Management Areas (HMAs) in Allotment

Prior to 1982 nearly all of the Buckeye Allotment was included as a portion of the Pine Nut HMA. The southern portion of the allotment consists of a relatively high proportion of intermingled private lands, primarily Indian allotments administered by the Bureau of Indian Affairs (BIA) (see map 2). The BIA, on behalf of the owners of the Indian allotments, requested removal of the horses from those private lands, so the 1982 Reno Management Framework Plan (MFP) required removal of all horses in the southern portion of the Pinenut HMA. This removal was accomplished in 1984 and 1985 when a total of 570 horses, primarily within the Buckeye allotment, were removed from the southern portion of the HMA.

The northern portion of the Pinenut HMA now covers about 16000 acres of the Buckeye allotment, so the Buckeye allotment contains just over 15% of the Northern Pinenut HMA (see map 6). The small Sand Canyon allotment, located on the northwest corner of the Buckeye allotment, is not physically separated from the Buckeye (map 6). The bands of

Northern Pinenut horses living on the Buckeye allotment also graze the Sand Canyon allotment and so census and utilization data for these two allotments will be combined for analysis.

2. Management Levels

The Appropriate Management Level (AML) for the Pine Nut HMA will be based on stocking levels for wild horses determined for all the allotments within the HMA. The stocking level for the Buckeye Allotment will be determined through the analysis of monitoring data contained within this document. Appendix II shows the results of these calculations for the Buckeye/Sand Canyon horses and for the total of the Pine Nut HMA.

C. Wildlife Use

1. Mule Deer (*Odocoileus hemionus*)

a. Existing Numbers

Based on 1991 Nevada Division of Wildlife population estimates and predicted distribution, 200 head of deer use the Buckeye Allotment yearlong, an additional 243 deer use the allotment in winter (5 months), with another 60 spending approximately 2 months within the allotment in the process of migration. Existing numbers are converted to AUM's below in order to compare to the 1982 population estimate of 313 AUMs and the "reasonable numbers" of 345 AUMs from the Reno Grazing Environmental Impact Statement. These are discussed in the Conclusions Section, pp. 14-15.

No. of Deer	***Period of Use (Months)***	***Percent Public Land***	***AUMs***
200	Yearlong (12)	64%	384
60	Migratory (2)	64%	19
243	12/01 to 04/30 (5)	64%	194
		Total AUMs =	597

b. Key Mule Deer Range

Most of the key mule deer winter range is found in the lower elevation southwestern part of the allotment, but a small portion of the Hackett Canyon key winter range takes in the very northern tip. Also used in wintertime is the area from Hot Springs Mountain north along lower elevations near the Carson River. Key summer range is primarily in the high elevation meadow and canyon areas of the southeast, with other summer use areas in the east and northeast. (see map 5).

2. Other Species

The Buckeye allotment provides good to excellent habitat for cougar (*Felis concolor*) and red fox in the mid to high elevations of the southeast. Coyotes (*Canis latrans*), cottontail rabbit (*Sylvilagus nuttalli*), jack rabbit (*Lepus californicus*) grey fox (*Urocyon cinereoargenteus*), spotted skunk (*Spilogale putorius*), and striped skunk (*Mephitis*) are

found throughout. California quail (*Callipepla californicus*) are found in Brunswick canyon and Pinenut creek, with Mountain quail (*Oreortyx pictus*) in Dutch, Mill, and Thompson canyons in the southeast portion of the allotment. Also living in the allotment are a number of species of small rodents along with various species of song birds, water birds and raptors.

III. Allotment Profile

A. Description

The Buckeye allotment occupies the western slopes and benches of the Pinenut mountains east of Carson City and Gardnerville. The allotment extends from Carter Station in the south to the Carson River below Mound House in the north. Elevations range from approximately 4400 feet along the Carson River to over 9400 feet on Mt. Siegel in the southern portion of the allotment. Very little of the allotment boundary is fenced.

Due to its close proximity to human habitation the allotment is subject to many conflicts associated with urban populations. These include heavy use by off road vehicles (ORVs), illegal dumping, and possible conflicts between public land users and the residential developments occurring on private lands along the western portion of the allotment.

The Buckeye allotment is classified as a category I allotment:

1. Primarily a poor ecological condition allotment with many acres of medium or high potential shrub/grass range sites now producing little understory vegetation under the severe competition of pinyon and juniper trees.

2. Large areas without trees have the potential to respond favorably to intensified management alone without expenditure of money on vegetative manipulation.

3. Allotment management plan needed to address Indian Trust land coordination and conflicts with wild horses, deer, livestock, and recreational use.

B. Acreage

Within the Buckeye allotment boundaries are approximately 81,500 acres of public land, 26,000 acres of Indian Trust land, and 17,000 acres of private lands of which about 9,000 acres are permittee owned land (Map 2). These lands are divided among 3 counties, and the public land is classified into 6 categories (Appendix IV).

C. Allotment Specific Objectives

1. Land Use Plan Objectives (1982 Reno Management Framework Plan)

    a. Allotments in the I category will be managed to improve resource conditions.

    b. A Herd Management Plan will be developed in the Pine Nut HMA.

    c. 1982 Wild horse numbers will be adjusted as indicated through monitoring or as agreed to by consultation and coordination through a public process.

2. Reno Rangeland Program Summary (RPS) - released May, 1984

    a. Assure ecological condition does not decline in non-woodland sites.

    b. Maintain mule deer habitat so it does not decline.

3. Pine Nut Habitat Management Plan (HMP) - revised in 1987

    a. Protect and improve riparian areas to a good or better condition class with special emphasis on mule deer key areas by May 1989 within the Pine Nut Planning Unit.

    b. Manage big game habitat to fair or good condition to support big game populations.

    c. Improve bitterbrush production and seedling establishment within key deer winter range.

4. Buckeye Allotment Management Plan (AMP) of 1986

    a. Increase the acreage in fair (mid-seral) ecological condition by 16% by 1996.

    b. Reverse downward trend of key plant species.

    c. Provide 4000 - 4500 AUMs livestock use on public lands and improve distribution patterns.

    d. Improve mule deer habitat to provide 345 AUMs and protect identified riparian areas.

    e. Improve water availability for livestock and wildlife.

D. Threatened and Endangered Species

No threatened or endangered species have been identified in the Buckeye allotment. No candidate plant species[1] have been observed in the allotment. Candidate animals that may occur in the allotment are the loggerhead shrike (*Lanius ludovicianus*), spotted bat (*Euderma maculatum*), and pygmy rabbit (*Brachylagus idahoensis*).

Since the loggerhead shrike is common throughout the Resource Area and occurs in a variety of habitats, the possibility that it may occur in the Buckeye allotment is high. The shrike generally prefers open areas for hunting insects, and occasionally small vertebrates. These birds generally will select nesting sites, usually tall shrubs or trees, near their hunting areas. Based on this description, foraging habitat in the Buckeye allotment would include old burns and meadows. Since these birds store their prey on thorns, the presence of thorny shrubs would be an advantage. Anderson peach-brush (*Prunus andersonii*) is one such plant species found throughout the low and mid elevations of the allotment.

The spotted bat spends daylight hours and also reproduces in caves, cliffs, and talus

[1]Candidate species include plants and animals on which the currently existing information indicates that listing may be warranted, but for which substantial biological information to support a listing is lacking. BLM Manual 6840 requires that management be such as not to require listing of these species.

slopes; generally feeding on flying insects in the vicinity of juniper grasslands and tall sagebrush. The pygmy rabbit reproduces and feeds in sagebrush/grasslands and riparian habitats. Since all these habitats occur throughout the Pine Nut Range, there is a possibility that the spotted bat and the pygmy rabbit occur in the Buckeye allotment.

E. Key Species Identification

1. Uplands

Based on their importance to livestock, wild horses, and soil stability late seral perennial grasses[2] are considered key species. These include Indian ricegrass (*Oryzopsis hymenoides*), several species of needlegrass (*Stipa spp.*), and in some ecological sites, basin wildrye (*Elymus cinereus*). Antelope bitterbrush (*Purshia tridentata*) is a key species due to its importance as winter forage for mule deer. Important indicator species which provide information about the ecological status of most upland sites would be big sagebrush (*Artemisia tridentata*) and/or the tree species of juniper (*Juniperus osteosperma*) or pinyon (*Pinus monophyla*)

2. Riparian

Riparian vegetation is important to wildlife, wild horses, livestock and humans. Woody species include Aspen (*Populus tremuloides*), coyote willow (*Salix exigua*), Pacific tree-willow (*Salix lasiandra*), and wild rose (*Rosa woodsii*). Meadow species include Nevada bluegrass (*Poa nevadensis*), Nebraska sedge (*Carex nebrascensis*), silver sedge (*Carex praegracilis*), Baltic rush (*Juncus balticus*), tufted hairgrass (*Deschampsia caespitosa*), spikerush (*Eleocharis palustris*), Kentucky bluegrass (*Poa pratensis*), and creeping wildrye (*Elymus triticoides*).

[2]Refer to footnote 4, page 10, for discussion of seral stages.

IV. Management Evaluation

A. Actual Use

Authorized livestock use is shown below. Refer to page 12 for wild horse census data.

Year	*Permittee*	*Kind of Livestock*	*AUMs: Active & Exchange of Use*	*Use Period*
1976	Gansberg	Sheep	5080	05/16 - 07/31
1977 & 78	Gansberg	Sheep	4251	06/02 - 07/15
1979 & 80	Buckeye	Sheep	6565	06/01 - 07/31
1981	Buckeye	Sheep	6134	03/01 - 11/15
1982	Buckeye	Sheep	2836	04/01 - 09/30
1983	Buckeye	Sheep	4785	04/15 - 02/28
1984	Buckeye	Sheep & Cattle	3364	04/15 - 10/15
1985	Buckeye	Sheep & Cattle	3840	03/15 - 10/20
1986	Buckeye	Sheep	2629	04/05 - 08/22
1987 - 89	Buckeye		0	
1990	Buckeye	Sheep	599	10/10 - 01/08
1991	Buckeye	Sheep	800	06/01 - 06/20 & 10/01 - 01/10
1992 & 93	Buckeye		0	

B. Precipitation

The annual precipitation from Carson City station, located at 4650 feet elevation has a fifty-six year mean annual precipitation of 11.1 inches with a range varying from 24 inches (in 1950) down to 3.1 inches in 1947. The Minden station has a mean annual precipitation of 8.5 inches, with a range from 18 inches (in 1983) down to 2.8 inches (in 1947).

Both recording stations are at a lower elevation than most of the ecological sites in the allotment (refer to Appendix I). Due to the effects of orographic lifting[3], sites at a higher elevation will have a higher annual precipitation than the Carson City or Minden Recording Stations. So the precipitation zones on the allotment range from approximately the 10" zone at the lower elevations to the over 14" zone at the higher elevations.

C. Utilization

Although eleven utilization studies were made since 1975, many of the earlier studies are of limited value for this evaluation because the observers did not separate sheep use from wild horse use; and grazing use in the later years is so limited in extent that the data cannot be used to reliably calculate a stocking level. The 1993 horse utilization study (see Appendix IIA) focused on use within the horse HMA, where utilization by horses is extensive enough to provide good data. And the detailed utilization studies done in 1980, 1981, and 1984 when the allotment had both moderate to heavy sheep use and still had a high population of wild

[3]Orographic lifting: precipitation increases associated with the increase in elevation due to the presence of mountains.

horses in the southern portion (prior to removal in 1984) separated horse use from sheep use and so provide quite useful data for stocking level determinations. Appendix IIIA shows the summary of the data from these years, while Appendix IIIB uses 1980 data as an example of the calculation technique in which the data is used to obtain a forage utilization percentage for both wild horses and sheep. Utilization by mule deer was not treated separately, but is generally attributed to sheep since deer diets and browsing habits most resemble sheep diets and habits.

Appendix IIIA summarizes the results of this utilization study in estimating grazing capacities for sheep and for wild horses. The 1984 data is interesting in that it indicates the variability which can be introduced by climate: 1983 was one of the wettest years on record, and obviously this greatly affected the forage production in 1984, showing production nearly double the 1980 and 1981 production. Although the winter of 1980 was quite wet, the 1979, 1980 and 1981 growing seasons were more average in precipitation: data from 1980 and 1981 will be much more representative of long-term productivity on the Buckeye allotment. The average of 1980/81 data indicates about 7200 AUMs could be produced for sheep and deer on public land (in the total absence of wild horses) or about 2700 AUMs could be produced for horses (or cattle) in the absence of sheep.

The large difference in productivity of the allotment for sheep in comparison to horses is in the vegetation: sheep would eat considerably more of the shrub vegetation which is the primary component of much of the range sites, and so the allotment is considerably more productive of sheep/deer forage than of the grasses which would provide the main diet for horses or for cattle. In fact, the data indicate the allotment is approximately 2.5 times as productive of sheep forage as of wild horse (or cow) forage, and this would be a useful ratio in estimating grazing capacity for a mix of livestock classes.

Although the 1979 utilization study did not consistently note which animal made the utilization being recorded, the study showed 63% overall utilization with 6,565 AUMs total sheep use and a projected 2100 AUMs of horse use. This is quite consistent with the overall use noted in the 1980 utilization study with the same amount of use. And the study was done by different people and the map units are laid out somewhat differently. The amount of wild horse use is estimated at the same level for 1979 through 1981, as 241 horses were removed from the Pine Nut herd during this period, keeping the population relatively constant.

D. Trend

The Buckeye Allotment has three key areas established in 1982 (map 3).

Plot B001: In deep sandy soil (Dune 10"-12" range site) near Hot Springs Mountain. The area has received no utilization by livestock or wild horses since 1984 but receives light use by deer. There has been a slight, not statistically significant, decrease in shrubs (bitterbrush and desert peach). Squirreltail density has exhibited a "precipitation response": increased densities in the wet mid-1980's followed by a decline back to former densities with the dry years beginning in 1987.

Plot B002: (A Loamy 8"-10" site) is located on the east side of Fish Spring Flat. This area shows a small, but statistically significant, increase in the grasses (squirreltail, Indian ricegrass, and basin wildrye) and no change in shrubs. Utilization observations showed light in 1984, slight in 1986, and none in 1992.

Plot B003: (A Loamy slope 14" site) is on the high ridge of the Southern Pinenuts. This area shows small, but not statistically significant, increases in western needlegrass and mountain big sagebrush, with no change in Nevada bluegrass or squirreltail. Utilization was heavy in 1985, severe in 1986, moderate in 1992, and heavy in 1993.

There are three Phenological Study Plots (small exclosures) in the allotment, established in 1977 (map 3).

Phenological Plot 1: Inside -- bitterbrush unchanged, sagebrush decreased slightly, green rabbitbrush greatly reduced, Indian ricegrass plants are larger and slightly more numerous. Outside -- same observations as inside.

Phenological Plot 2: Inside -- No change in shrubs, slight increase in grasses. Outside -- same observations as inside.

Phenological Plot 3: Inside -- Little apparent change: shrubs are more mature, with more dead portions showing; grasses are the same to slightly down in density.
Outside -- same observations as inside.

There are six photo trend plots in the allotment, established in 1975 and 1976 (map 3).

Plot TP1 (Jacobsen): Shows a slight increase in both shrubs and grass from 1976 to 1983, then downward slightly by 1990, followed by slightly increased numbers by 1993 (seems to correlate generally with growing season precipitation).

Plot TP1 (Buckeye): Grass and bitterbrush increased in density and vigor from 1976 to 1983; decreased to 1990, and then increased again to 1993 (apparently following the precipitation pattern).

Plot TP2A: (A small burned area seeded to crested wheatgrass) In 1975 the plot showed scattered wheatgrass plants with heavy annual cheatgrass. By 1983 wheatgrass had increased, cheatgrass decreased, and sagebrush returned to the site. By 1986 wheatgrass was reduced, sagebrush and bitterbrush were large and vigorous. By 1993 the wheatgrass is much reduced and the brush species are mature and in moderate density.

Plot TP4: The 5'X5' plot frame area shows an increase in bitterbrush and sagebrush, but the overall view shows little change except for the pinyon trees becoming larger.

Plot TP5: This low sagebrush site shows no change in any properties from 1975 to 1993.

Plot TP6: This winterfat site shows a slight increase in both size and density of winterfat plants from 1975 to 1993.

Professional observations: From looking at the trend plot data we could only conclude that trend is generally static, with some tendency to show relatively short-term responses to precipitation. But on-the-ground inspection shows the following:

Big Sagebrush sites: These universally exhibit sharp, vertical-sided gullies which are frequently difficult to cross with an off-road vehicle. Topsoil is being lost, probably at an unsustainable rate -- trend must then be downward. But there is a notable exception found in the small burn on the east side of the Johnson Lane area: this burned in 1983 and was not seeded (additional seed not needed). Indian ricegrass and Thurber needlegrass are in good density; the gullies are rounded and healed little "grassed waterways" easily crossed with wheeled vehicles (see photo #1 as contrasted with photo #2).

Juniper/Pinyon sites: These are the lower elevational sites now exhibiting some tree population. Tree densities are generally low to moderate (good populations of shrubs and some grasses are evident in the understory). Gullies are generally active (see photo #3) and often require care in crossing with our off-road vehicles. The old wood-cutting area east of Johnson Lane and southeast from Brunswick Canyon shows some improvement in grass and

shrub densities in comparison to uncut areas, but the densities of shrubs and grasses are generally not sufficient to cause the gullies to heal. The 1983 burn in the hills south of Buckeye Creek has only sparsely revegetated with perennials (primarily squirreltail) but annual mustards, russian thistle, and cheatgrass provide enough cover that the gullies are healing.

Pinyon/Juniper sites: These are the higher elevational sites now exhibiting tree populations. These include sites which naturally should have a "Potential Natural Community" (PNC) of pinyon trees, as well as sites on which we would expect a PNC (fire induced) of shrubs/grasses. Tree densities are high, but south, east, and west slopes show some rill and gully erosion indicating a slow decline in productive potential. Many of the north slopes have such a dense tree population that the needlecast provides excellent ground cover: although understory is reduced to an occasional current bush and almost nothing else, the soil surface is nicely protected from erosion by the pine needles and cones (see photo #4).

The Slater burn of 1982 (see map 4) covered a variety of these PJ sites and is very educational. All slopes are stabilized, including the south (photo #5) The burn was seeded with smooth brome and a variety of wheatgrasses, of which the smooth brome and intermediate wheatgrass are by far the most successful. All gullies are healed: rounded, grassed bottoms (see photos #6 and #7). The higher elevation north slope is returning to brush (primarily snowberry with some bitterbrush at this stage --see photo #8).

The Buffalo Canyon burn of 1990, however, was not seeded (not considered necessary for a small, narrow burn) and has been very slow to revegetate. The area remained totally bare for two growing seasons; produced scattered annual mustard and cheatgrass in the third season, and only in the fourth season grows a dense enough cover of annual weed species to provide some soil protection.

The Lebo woodcutting area, which has been used for 20 years, had some portions (approximately 20 acres in total) which were completely cleared of trees. These show a considerable grass response in comparison to adjacent uncut areas. The annual cheatgrass is first to take advantage of the reduced competition, but needlegrasses and basin wildrye have also made good recovery in the absence of trees. These small areas have a high ground cover and a noticeable absence of erosion.

E. Ecological Status

In 1979 a soil and vegetation inventory of the Buckeye Allotment produced weight estimate data on all species of grasses, forbs and shrubs to determine species composition of the existing plant communities. Unfortunately, percent composition was not determined for tree species, even when they were listed as occurring on the site: the PJ trees were considered "invaders" in the thinking of the time and their production/dominance was generally not recorded. But based on the earlier range survey of 1963, pinyon/juniper tree timber covers 44,775 acres, or 56% of the public land in the Buckeye Allotment.

The Soil Surveys for Douglas, Lyon and Carson City Counties, and the site descriptions for Major Land Resource Area 26 recognized that some soils will support ecological sites with potential natural communities (PNCs)[4] dominated by pinyon-juniper. Based on the analysis of

[4]Note that the Bureau currently uses concepts and terminology described in the BLM Manual Handbook H-4410-1, *National Range Handbook* (NRH), released on 7/12/84. H-4410-1 definition of Potential Natural Community (PNC): "The biotic community (potential natural plant community and wild animal community) that would become established if all successional sequences were completed without interferences by man under the present environmental conditions". It is important to remember that the existing vegetation may be quite different from the PNC due to such

soils data for the allotment, some 12,000 acres, or about 15%, of public land in the Buckeye Allotment should support a PNC dominated by pinyon - juniper woodland (refer to the table below) while 81% of the allotment should support a PNC dominated by grasses, shrubs or other tree species. The "barren areas" category identified below includes areas such as rock outcrops that have the potential of supporting very sparse stands of vegetation.

Potential Natural Community	*Acres Public Land*	*Percent Public Land*
Pinyon-Juniper Woodland	11,942	15%
Ecological sites with PNC dominated by species other than pinyon or juniper.	64,513	81%
Barren areas (eg., rock outcrops)	3,015	4%

F. Wildlife Habitat

Mule deer key winter range was rated based on procedures from the Bureau's 6630 Manual. In the southwest area habitat was rated at fair: The pinyon and juniper trees are of a density to provide good hiding and thermal cover, but many bitterbrush plants are low in vigor with little reproduction occurring. No use of bitterbrush was being made by livestock, and only slight use by deer. The range sites in the area mapped as "Critical Deer Winter Range" in the southwest part of the allotment appear to have aged to a point well beyond being productive of deer forage[5]. The winter ranges in the north rate at high fair to good because of good cover, moderate forage, and good water distribution.

G. Riparian Habitat

Riparian areas were visited in 1992, 1993, or 1994 (Refer to Map No. 3 for locations). These areas were evaluated based on the definition of healthy and functioning riparian areas described in the *Riparian - Wetland Initiative for the 1990's*[6].

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factors as improper grazing, mechanical vegetative manipulation, etc. A plant community that has not achieved PNC is a seral plant community. If all plants were killed within an ecological site, the plant community that first appears would probably be composed of plant species very different from those in the PNC (probably annual grasses and forbs). This would be described as an early seral plant community. As the early seral plant species are replaced by plants found in the PNC (late seral plant species), the plant community undergoes a process referred to as plant succession. This includes four seral stages (early seral, mid seral, late seral, and finally, PNC). These stages are usually determined by the similarity of plant species to those found in the PNC (0-25% = early seral, 25-50% = mid seral, 50-75% = late seral, 75%-100% = PNC). The present state of vegetation in relation to PNC (i.e., the seral stage) is referred to as ecological status. Note that this is a very simplified explanation of a very complex process that is influenced by many factors. One of these influences is wild fires caused by lightning storms during the hot and dry periods of the year, which was a natural element in many plants communities prior to human influences. Therefore, the PNC for ecological sites that evolved under the presence of wild fires would be composed of fire tolerant plant species. Removal of this element (i.e., fire prevention) may cause the fire tolerant species to be replaced by more competitive fire sensitive species and the plant community would move away from PNC. Appendix VI discusses this in relation to the pinyon - juniper plant communities.

[5]Leckenby, Donavin A., Dennis P. Sheehy, Carl H. Nellis, Richard J. Scherzinger, Ira D. Luman, Wayne Elmore, James C. Lemos, Larry Doughty, and Charles E. Trainer (1986) *Wildlife habitats in managed rangelands - the Great Basin of Southeastern Oregon*. USDA Forest Service and USDI-BLM General Technical Report PNW-139.

[6]BLM, 1991. Pages 6 to 8.

Badger Spring. The spring area is in Proper Functioning Condition. The area around the trough is heavily impacted year-around by horses but they have not entered the fenced meadow area created by overflow water.

Buckeye Creek. Functional-at-risk. Upland watershed conditions have resulted in the creek becoming ephemeral. Moderate stands of willow and herbaceous understory are capable of slowing and filtering average flows, but are not vigorous enough to handle a large event without allowing cutting of banks. Problems are lack of late summer water and the shading by the PJ which is slowing herbaceous growth.

Buena Suerte Spring. Proper Functioning Condition -- good herbaceous growth and age structure of aspen. Able to handle heavy runoffs.

Bull Run Spring. Non-functional -- too little herbaceous vegetation to slow and filter runoff water. Problems -- seasonally heavy horse use, and poor watershed with heavy PJ cover has reduced flow of water. Shading by both willow and PJ are slowing herbaceous growth.

Eldorado Canyon. Functional-at-risk -- There are numerous bare areas along the creek caused by both heavy wild horse use and by OHVs driving down the creek bed. Boulders provide good roughness, while willows and some herbaceous vegetation are adequate to slow moderate runoff events.

Erastra Spring. Functional-at-risk. Heavy PJ in the watershed and in the riparian area, along with downcutting, has reduced the flow to ephemeral status. The herbaceous vegetation is only moderately vigorous because of shading and reduced late summer moisture and so would be unable to slow and filter runoff water from large events.

Pinenut Creek in T12N, R21E, SW1/4 sec.24. Functional-at-risk. The surface flow is ephemeral but riparian vegetation is healthy and vigorous, able to slow and filter runoff from a major event. However, the immediately adjacent upland vegetation is primarily basin big sagebrush and cheatgrass with sparse basin wildrye and creeping wildrye. This adjacent area would not withstand a major event: a new drainage area would probably downcut outside the present riparian area, leaving stretches of our riparian vegetation "high and dry".

Taperneck Spring. This new spring appeared 5 years ago following the filling of the Carson City effluent pond on the bench above Brunswick Canyon. The spring is in Proper Functioning Condition: the riparian zone is each year progressing further down Brunswick Canyon and exhibiting greater vegetative diversity with more age structure.

West Slope Spring. Functional-at-risk, but approaching Proper Functioning Condition -- herbaceous vegetation (Carex, grasses, rushes) form nice filter in bottom, and the immediately adjacent uplands are exhibiting increased ground cover following cutting of young pinyon trees beside the drainage.

H. Wild Horse Habitat and Numbers

Wild horses on the Buckeye allotment obtain most of their forage from the Brunswick Canyon chaining area and the adjacent sagebrush sites. These non-treed sites form over half of the herd area within the Buckeye allotment and enable this portion of the herd area, which contains 16% of the acreage of the herd area, to support over 20% of the allowable management level of horses. The considerable density of trees and the consequently sparse understory vegetation on the remaining sites in the herd area are limiting factors for wild horses (see Appendix VI for additional information). Shown below is census data specific to the Buckeye and Sand Canyon allotments.

Year	*Wild Horse Numbers*	*AUMs*
1989	39	468
1992	55	660
1993	49	588

Census and removal data available for the entire HMA is shown below, but the data was not stored in a form where numbers could be tabulated for individual allotments.

Year	*Numbers Counted During Census*	*Numbers Removed During Major Gathers*
1981	820	
1984	664	235
1985		335
1986	273	233
1989	279	
1990	351	
1992	467	
1993	491	

I. Livestock Management Factors

Sheep: The present ecological status of most range sites on the Buckeye allotment, heavily shrub dominated with low grass populations, favors sheep over cattle. The unfenced nature of nearly all the allotment boundary again favors sheep: when grazing near the boundaries of the allotment, herder control of animals is required to prevent straying off the allotment. Water, however, is a serious problem for sheep grazing in all but the southeast pasture. The only waters presently capable of supplying a band of sheep in the entire northern two-thirds of the allotment are Taperneck Spring and Eldorado Creek. So water must be hauled to most areas of the allotment.

Cattle: The allotment as a whole is much more productive of sheep forage than of cattle forage, and the unfenced boundaries will result in much work in keeping cattle within the allotment in much of the area. In the southeast pasture the ridgeline of the Pine Nuts forms an imaginary boundary and cattle rapidly move onto adjacent allotments from this point. Along the western edge of the allotment livestock would be in view of irrigated fields (and lawns) of the Carson Valley and subdivisions in Fish Springs and Johnson Lane. This view would be especially magnetic in the summer: cattle would head for those "greener pastures". But in the north, east and northeast heavy pinyon stands result in expanses very low in forage. These grassless areas would provide a considerable barrier to cattle movement in these directions.

And cattle are being grazed successfully now: the entire south-central portion of the Buckeye is private land, and the Buckeye Ranch has grazed this area with cattle for the past 10 years without much straying "out of bounds". It is at the western and southern edges of the allotment that the lack of fence will cause problems with cattle.

Water is quite limiting for cattle also, but maintenance of Lebo, Erastra, Bull Run, and Badger Springs would enable these to water a modest number of animals. Water hauling, however, would necessarily be the primary method of providing for the cattle. And in the north a further constraint will be introduced into management planning because of the wild horses. This

northern portion, all within the Herd Management Area, already receives growing season use by horses each year. At the present light use levels most of the grass plants are grazed only once during the growing season, and grass plants are adapted to this grazing use. If also grazed by cattle during the growing season, many of the plants would be grazed twice or more during the season: this is *overgrazing* and would lead to loss of plants.

V. Conclusions

The accomplishment of the objectives shown in Section III C (Page 4) are discussed below. Objectives have been grouped due to similarities.

A. Trend and Condition

Allotments in the I category will be managed to improve ecological condition. Reno MFP

Assure ecological condition does not decline in non-woodland sites. Reno RPS

Increase the acreage in mid-seral condition by 16% by 1996.
Reverse downward trend of key plant species
Improve mule deer habitat. Buckeye AMP

Based on analysis of Buckeye allotment trend photo plots and frequency studies (see map 3 for locations) the ecological condition appears static, which would meet the "non-decline" objective from the Reno RPS and the "reverse downward trend" objective from the AMP. However, as noted in Section IV-D an observation of soil loss indications shows much of the uplands to be in a slow downward trend. We are not meeting most of these ecological status objectives.

B. Wild Horses

A Herd Management Area Plan (HMAP) will be developed in the Pine Nut HMA. Reno MFP

Wild horses will be totally removed from the Southern Pine Nut HMA. Other adjustments from 1982 wild horse numbers will be made as indicated through monitoring or as agreed to by consultation and coordination through a public process. Reno MFP

Monitoring the vegetation and wild horse use was the first step in developing the HMAP, and now this evaluation is the second step in developing management direction for the Buckeye Allotment, including management of wild horses. Once evaluations for all of the allotments in the Pine Nut HMA have been submitted for public review and input, a Multiple Use Decision (MUD) will be issued covering each allotment. The Wild Horse Management Decision portion of the MUD will then be incorporated into a herd management area plan for the Pine Nut HMA.

Since the horses move across several different allotments during the year, the appropriate management level (AML) for the Herd Area will be determined by finding the correct stocking level for each allotment (in AUMs rather than in horse numbers). The sum of these stocking levels for all allotments within the Herd Management Area will then be used to calculate the AML (in horse numbers) which balances the wild horse population with the habitat. The stocking level for wild horses in the Buckeye Allotment portion of the Pine Nut HMA as calculated in Appendix IIA is 493 AUMs.

Virtually all horses were removed from the Southern Pine Nut HMA on schedule in 1984 and 1985. The present Northern Pine Nut wild horse population within the Buckeye allotment is healthy and in balance with the forage supply. Those horses which move into the Hot Springs Mountain/Johnson Lane area in late Fall each year nearly all return to their normal range within

the Northern HMA by very early Spring. Their wintertime grazing has been of definite benefit in maintaining vigor of the grass plants in the area, and the few animals which stay too long on private land generate complaints which result in their removal. These "requested removals" have been of sufficient volume, for the past several years, to result in a nearly static population level.

The wild horse objectives are being met.

C. Livestock

Provide 4000 to 4500 AUMs for livestock use on public land and improve distribution patterns. Buckeye AMP

Since this objective was developed the Buckeye Ranch, as have ranches throughout the West, abandoned the sheep raising business. The ranch has requested a change in the permit from sheep to cattle. This evaluation is to look at the merits of this change in kind of livestock. The use / utilization studies summarized in Appendix III show that production of sheep forage exceeds the objectives of the AMP and so the objective, although no longer particularly relevant, has been met.

D. Wildlife Habitat

Lessen conflicts between deer, livestock, and wild horses on critical winter range. Reno MFP

Manage mule deer habitat for "reasonable numbers". Reno MFP

Improve mule deer habitat to provide an increase in deer AUMs so as to reach "reasonable numbers". Reno RPS

Protect and improve riparian areas. Reno RPS

Manage habitat to fair or good condition to support big game populations. Pine Nut HMP.

Improve bitterbrush production and seedling establishment within key deer winter range. Pine Nut HMP

Improve mule deer habitat to provide an increase in deer AUMs to a level of 345 AUMs if possible. Buckeye AMP

At the time of preparation of the Reno EIS the estimated deer use of the Buckeye allotment was 313 AUMs and a "reasonable number" of 345 AUMs was projected. Latest census data, projected to the allotment level, indicates a present use by mule deer of nearly 600 AUMs (see Section IIC). So the animal numbers show that we have exceeded objectives for the allotment. Habitat ratings of the winter ranges are in the high-fair to low-good levels, primarily on the strength of the good hiding and thermal cover available. These ratings meet the habitat objectives. However, the bitterbrush on the key deer winter range generally exhibits low vigor and little reproduction, apparently due primarily to competition from increasing tree densities. Soil loss observations indicate a slow downward trend in the vegetative production potential of many sites providing mule deer habitat.

We have met or exceeded our population and habitat objectives, but professional observations indicate that this may not be sustainable in the long-term under present trends in productive potential.

E. Riparian Habitat

Protect and improve riparian areas to a good or better condition class with special emphasis on mule deer key areas by May 1989 within the Pine Nut Planning Unit. Pine Nut HMP

Protect 11 riparian areas. Buckeye AMP

The primary mule deer habitat riparian area was fenced (Buena Suerte exclosure) and is now in proper functioning condition.

Of the 11 riparian areas listed in the Buckeye AMP for protection, 3 have improved slightly to functional-at-risk (both the lower Erastra Spring sites and lower Eldorado Creek). The Buena Suerte exclosure (in proper functioning condition) takes in 5 of the listed sites, while 3 more sites on the upper portion of Eldorado Creek are improving due to good project work by volunteer SCA (Student Conservation Association) crews.

We have met somewhat over half of our riparian goals for the allotment at this time, and are moving in the right direction to meet all riparian goals.

F. Threatened and Endangered Species

Management of horses, sheep, or cattle should result in no significant changes to the suitability of the shrike's habitat. Because of the shrike's feeding habits, the biggest threat to this candidate species would result from loss of open areas due to the increasing density of pinyon - juniper trees. Vehicular traffic in April may impact nesting birds.

Both the spotted bat and the pygmy rabbit, with their dependence on riparian zones for production of a portion of their food supply, could be harmed if either horses or livestock were allowed to severely impact the riparian zones. The proposed livestock management will allow riparian zones to maintain or improve in condition and so should pose no threat to the bat or rabbit. The horses are using Badger Spring year-around and this could have damaged the riparian zone below the spring, but this small zone has been fenced off from horse access for several years. The present and proposed light to moderate forage utilization levels, which improve nutrient cycling without harming the forage base, should improve forage conditions for both bats and rabbits through an increased insect population and improved grass palatability.

Present and proposed livestock and wild horse management and populations pose no threat to the candidate species.

VI. Technical Recommendations

A. Short Term Objectives

In the short term we need to balance animal numbers with forage production so that the animals obtain adequate nutrition and the forage plants are not subjected to the continually recurring grazing use which would deplete the plant's energy reserves.

1. Recommendation: The allowable use by wild horses in the Buckeye Allotment portion of the Pine Nut Herd Management Area (HMA) should be 493 AUMs (Refer to Appendix II).

   Rationale: In observing these horses over a number of years, the WH&B Specialist and the Range Conservationist considered the bands to be healthy and not adversely impacting the resource. The utilization mapping and calculations showed that the utilization levels are quite close to optimum at the present population level, with the Buckeye allotment providing about 493 AUMs of forage for the horses.

2. Recommendation: Maintain the livestock active preference at 4973 AUMs for sheep; use an initial estimate of 2200 AUMs for cattle, and use standard Actual Use/Utilization study over a 5 - year period to refine this estimate and establish an allocation for cattle which is sustainable and allows plenty of forage for wild horses and mule deer.

   Rationale: The utilization studies made when both sheep and wild horses were making substantial use of the entire allotment showed that the allotment provided full preference sheep grazing use at light or moderate use levels -- this should be easily sustainable under good forage management techniques.

   The same utilization studies (see Appendix III) showed an estimated 2700 AUMs horse forage. The wild horses of the Pine Nut herd are using about 500 of these AUMs forage leaving an estimated 2200 AUMs grass forage to be used by cattle.

3. Recommendation: in order to provide forage for over-wintering mule deer, allow no more than 25% use on bitterbrush by livestock in the deer winter range before October. Yearlong use by all herbivores should not exceed 45%.

   Rationale: Cattle browse more than horses and so should be watched to see that plenty of forage is available for mule deer. And the plants need a good number of leaders remaining unbrowsed at the end of the season, as these new leaders will be the primary seed producers for next year.

4. Recommendation: Cattle should be authorized in the southeast portion only in conjunction with private lands of the central pasture so that a rotational strategy will result in livestock leaving the riparian zones by mid-July. The west side of the allotment should have cattle only in the wintertime; use in other seasons would require Buckeye Ranch to fence the boundary. And the north end of the allotment should not have either cattle or sheep grazing during the growing season.

   Rationale: The narrow band of public land in the southeast is not practically grazed by itself by cattle (although herded sheep could use the area as a unit). But used in conjunction with the lower, primarily private, canyons the area could comprise the high, steep portion of a three-pasture unit requiring minimal fencing to be effective. Cattle will tend to leave the west side of the allotment anytime the valley below is green; but in wintertime the valley will be both brown and colder than the rangeland. And the north end of the allotment already receives growing season use by wild horses, so that additional growing season use would result in significant overgrazing which would diminish the grass vegetation.

B. Long Term Objectives

Meeting long term objectives requires that the health of the rangeland be improved, which would result in more grass (for better watershed cover, as well as a better forage base for wild horses and livestock) and a vigorous shrub component (for improved wildlife diet). Additionally the west slope of the Pine Nut Mountains is a "Class IV" visual area, which means that vegetative alterations, although they may be quite visible, should appear natural.

1. Recommendation: Develop a Pine Nut Mountain "desired landscape" description which uses the PNC information as a general guide for meeting Resource Management Plan objectives.

   Rationale: Appendix I shows the plant communities that would have occurred without human intervention (i.e., the potential natural communities or PNC). These "potential

natural communities" would, on the Buckeye Allotment, all be quite high in grasses and shrubs which would meet most watershed and forage goals. However, management to a full PNC over the entire Buckeye Allotment may not meet all land use plan objectives of the RMP. As an example, since pinyon and juniper woodland has considerable economic, aesthetic, cultural and wildlife values, it is important to manage for a long term ecosystem which includes pinyon-juniper woodland. Based on the soils inventory, only 15% of the Buckeye Allotment would support a PNC dominated by pinyon and/or juniper which is probably somewhat less than the amount required to meet woodland, wildlife, visual, and cultural RMP objectives as developed with both public and agency input during land use planning.

2. Recommendation: In planning treed sites, favor natural treed sites and north slopes as first choices.

   Rationale: These are the sites which will be least likely to produce accelerated soil erosion when growing pinyon and juniper trees; and these generally higher, steeper sites were also identified in public meetings for the 1975 Pine Nut - Markleeville MFP as worth protecting to maintain scenic qualities.

3. Recommendation: Use woodcutting wherever possible in removing trees from areas where clearing is planned.

   Rationale: The wood is a valuable commodity, and this value has been recognized in public meetings held in conjunction with the land use planning.

4. Recommendation: Fight wildfire only when and where needed to protect people and structures on and near the Buckeye Allotment.

   Rationale: Most of the Buckeye Allotment is in a slowly declining ecological condition. The primary exceptions are burns of the past 10 to 12 years (see photo 1 and photos 5 through 8). Fire has been responsible for portions of the allotment meeting land use plan goals: fire appears to be a natural and necessary component of this ecosystem.

5. Recommendation: On burns, either planned or unplanned, seed if surviving grass plants average more than 10 feet apart. Use native grasses (ricegrass, thurber needlegrass, squirreltail, basin and creeping ryegrass) where reasonably available. If natives are not reasonably available, smooth brome and intermediate wheatgrass show promise for higher precipitation sites while crested wheatgrass is suitable in lower areas.

   Rationale: Range sites in the Buckeye have recovered rapidly when any reasonable seed source remains following the burn. But on areas which lack a seed source, recovery has proved to be extremely slow and the soil has remained bare and quite vulnerable to erosion for at least 3 years following burning. Native plants would simplify management considerations, but the other listed grasses should hold the soil in place while natural plant succession occurs.

6. Recommendation: Use animal concentration/disturbance techniques to increase grass cover on the sagebrush benchlands in the Johnson Lane and Fish Springs areas.

   Rationale: Alluvial fan flooding has damaged houses in this area on at least four occasions during the past three years. A better grass cover will reduce the volume of runoff and the amount of sediment load: ranchers on nearby allotments have used wintertime hay feeding, with daily change of feed area, to impact the soil and so increase the grass cover dramatically. The Buckeye has higher potential sites than on the nearby allotments so should respond at least as well. And this technique, although slower than burning,

eliminates the risk of fire near subdivisions. Both the early (1975) MFP and the later RMP planned for intensified livestock grazing practices, rather than mechanical methods, to be used to achieve improved watershed conditions.

7. Recommendation: Continue classifying the Buckeye as an "I" category allotment.

   Rationale: Trend plots show that many areas of the Buckeye are stable in trend. Meeting land use plan objectives, however requires some improvement in ecological condition for this allotment, and this is the primary reason for classifying allotments into the "Improve" category.

APPENDIX I

BUCKEYE ALLOTMENT
ECOLOGICAL SITES

EcoSite	Ecological Site Name	Potential Plant Community	Yield (LBs/Ac)	Public Acres	% OF Allot.
026XY025NV	Claypan 8–10"PZ	ARAR8/STTH2–POSE	400–300–200	18251	22.4%
P/J	Pinyon–Juniper Woodland	PIMO–JUOS		12264	15.0%
026XY010NV	Loamy 10–12" PZ	ARTR2/STTH2	1100–800–600	10856	13.3%
026XY016NV	Loamy 8–10" PZ	ARTRW/STSP3	800–600–400	6359	7.8%
026XY005NV	Loamy 12–14" PZ	ARVA2–PUTR2/STIPA–BRCA5–ELCI2	1300–1100–800	5369	6.6%
026XY020NV	Sandy 8–10" PZ	ARTR2/STCO4–ORHY	800–600–400	5115	6.3%
026XY015NV	Shallow Loam 10–12" PZ	ARTR2–PUTR2/STTH2	700–600–450	4847	5.9%
026XY029NV	Eroded Slope 8–12" PZ	ARTRW/STIPA–ORHY–SIHY	200–150–100	3900	4.8%
ROCK	Rock outcrop	BARREN		2685	3.3%
026XY046NV	Granitic slope 12–14" PZ	ARVA2–PUTR2/STIPA	800–600–400	2609	3.2%
026XY023NV	Claypan 10–14" PZ	ARAR8/STTH2	500–400–300	2357	2.9%
026XY038NV	Loamy Slope 14+" PZ	ARVA2/STOC2	1600–1100–700	1697	2.1%
026XY014NV	Dune 10–12" PZ	PUTR2–PRAN2/STCO4–ORHY	800–700–500	1352	1.7%
026XY018NV	Granitic South Slope 10–12" PZ	PUTR2–ARTRW/STSP3	800–600–400	878	1.1%
026XY028NV	Mountain Ridge	ARAR8/STLE4	300–150–75	703	0.86%
Flooded				484	0.59%
026XY009NV	Mahogany Savanna	CELE3/ARVA2/STIPA	1700–1300–900	468	0.57%
RUBBL	Rubble land	BARREN		374	0.46%
026XY032NV	Deep Sodic Fan	ATCA2–ATTO/ELCI2	1500–1200–900	280	0.34%
026XY030NV	Loamy bottom 10–14" PZ	ARTRT/ELCI2	4500–3000–1500	208	0.26%
026XY008NV	Granitic fan 10–12" PZ	PUTR2–ARVA2/STCO4–ORHY	1000–800–600	176	0.22%
026XY040NV	Gravelly loam 14+" PZ	PUTR2–ARVA2/STIPA	1500–1300–800	105	0.13%
026XY021NV	Sodic Flat	SAVE4/ELCI2–DISPS2	600–500–300	72	0.09%
026XY012NV	Dry floodplain	ARTRT/ELCI2	1700–1200–900	60	0.07%
026XY003NV	Wet meadow 10–14" PZ	PONE3–CAREX	4000–3000–2000	58	0.07%
Barren	Barren	BARREN		36	0.04%
Aspen	Aspen woodland	POTRT		21	0.03%
026XY039NV	Claypan 14+" PZ	ARAR8/STLE4–POA	500–300–150	13	0.02%
026XY042NV	Shallow calcareous loam 8–10" PZ	ARARN/STIPA	400–300–200	9	0.01%
			TOTAL =	81,608	Acres

Explanation of Data in Appendix I

Column	Description
1	Ecological Site Number. This number can be used to reference a site to the Soil Conservation Service site descriptions for Major Land Resource Area (MLRA) number 026. The data used in columns 2, 3, and 4 are derived from these descriptions.
2	Ecological Site Name. "PZ" means Precipitation Zone and is measure in inches.
3	Potential Plant Community. These are the major plant species found in the Potential Natural Community (PNC) of this range site. Plant codes are identified below.

Plant Code	Scientific Name	Common Name
ARAR8	*Artemisia arbuscula*	low sagebrush
ARARN	*Artemisia arbuscula nova*	black sagebrush
ARTR2	*Artemisia tridentata*	big sagebrush
ARTRW	*Artemisia tridentata wyomingensis*	Wyoming big sagebrush
ARVA2	*Artemisia vaseyana*	mountain big sagebrush
ATCA2	*Atriplex canescens*	fourwing saltbush
ATTO	*Atriplex torreyi*	Torrey saltbush
BRCA5	*Bromus carinatus*	mountain brome
CELE3	*Cercocarpus ledifolius*	mountain mahogany
DISPS2	*Distichlis stricta*	saltgrass
ELCI2	*Elymus cinereus*	basin wildrye
JUOS	*Juniperus osteosperma*	Utah Juniper
ORHY	*Oryzopsis hymenoides*	Indian ricegrass
PIMO	*Pinus monophylla*	singleleaf pinyon pine
POA	*Poa species*	bluegrass
PONE	*Poa nevadensis*	Nevada bluegrass
POSE	*Poa secunda*	Sandberg bluegrass
POTRT	*Populus tremuloides*	quaking aspen
PRAN2	*Prunus andersonii*	desert peachbrush
PUTR2	*Purshia tridentata*	antelope bitterbrush
SAVE4	*Sarcobatus vermiculatus*	greasewood
SIHY	*Sitanion hystrix*	bottlebrush squirreltail
STCO4	*Stipa comata*	needle–and–thread grass
STIPA	*Stipa species*	needlegrass
STLE4	*Stipa lettermanii*	Letterman's needlegrass
STOC2	*Stipa occidentalis*	western needlegrass
STSP3	*Stipa speciosa*	desert needlegrass
STTH2	*Stipa thurberiana*	Thurber needlegrass

4	The production yield in pounds per acre for: above average, average, and below average years.
5	The area of public land in the Buckeye allotment identified with this range site.
6	Percentage of the allotment covered by the specific ecological site.

Appendix IIA
Sand Canyon & Buckeye Allotments
Stocking Level Calculations

Shown below are the series of calculations used to derive the potential stocking level for wild horses and livestock in the Sand Canyon and Buckeye Allotments. Since wild horses continuously move from one allotment to the other in this portion of the HMA, the stocking levels are calculated togather. Stocking levels are determined using the Potential Actual Use formula from BLM Technical Reference (TR) 4400-7, *Rangeland Monitoring Analysis, Interpretation, and Evaluation* (November, 1985), Appendix 2, pages 54 - 56:

$$\frac{\text{Actual Use (AUMs)}}{\text{Average Utilization (\%)}} = \frac{\text{Potential Actual Use (AUMs)}}{\text{Desired Average Utilization (\%)}}$$

The formula compares the percent *Average Utilization* (calculated in Sections A and B, below) to the *Actual Use* of the grazing animal(s) that resulted in that utilization (Section C). Based on this comparison, the *Potential Actual Use* necessary to achieve the *Desired Average Utilization* (Section D) can algebraically be determined (Section E). The potential actual use at the desired utilization level would be the desired stocking level for the Sand Canyon and Buckeye Allotments.

A. Use Pattern Mapping Data. Acreages shown below are taken from the 1993 use pattern mapping. Although the "No Use" category is shown to account for the total acreage in the allotment, this acreage was not used in calculations relating to wild horses. Being free-roaming creatures of habit, the wild horses did not use these portions of the allotment due to topographical restrictions, fear of predation, and/or lack of forage due to dense pinyon-juniper overstory. Therefore, these areas are considered to be ungrazable by wild horses. Note that 50 acres has been isolated from the remainder of the allotment and therefore is not considered in these calculations (refer to "Acreage", page 3, of the Sand Canyon Allotment Evaluation).

No livestock was authorized to graze in 1993, therefore all use is by wild horses.

Utilization Class	Class Midpoint (y)	Acres in Sand Canyon Allot. by Class (x^1)	Acres in Buckeye Allot. by Class (x^2)	Total Acres by Class ($x^1 + x^2$)	Weighted Acres ($(x^1 + x^2) * y$)
Slight	10%	2,148	5914	8092	806.2
Light	30%	233	1006	1239	371.7
Moderate	50%	87	5468	5555	2777.5
Heavy	70%	0	396	396	237.6
Severe	90%	0	0	0	0
TOTALs		2,468	12784	15252	4193

B. Average Utilization. The source for the weighted average formula used below is from the BLM Technical Reference TR 4400-7[1].

$$\text{Average Utilization} = \frac{\sum \text{(Acres per Util. Class X Class Midpoint)}}{\sum \text{Acres}}$$

$$\text{Average Utilization} = \frac{\Sigma(x * y)}{\Sigma(x)} = \frac{4,193}{15252} = \mathbf{27.49\%}$$

C. Wild Horse Actual Use. 49 head of wild horses were counted in the Sand Canyon and Buckeye Allotments in 1993. Based on yearlong grazing, wild horse actual use for the allotment is calculated as follows:

49 wild horses X 12 months = **588 AUMs**

D. Desired Utilization in HMA. Since these calculations are based on yearlong use of the allotments (i.e., during critical growth periods of plant species) it is appropriate to use the yearlong AUL for perennial grasses (55%) shown in the *Nevada Rangeland Monitoring Handbook* (September, 1984), page 23. An equal division of forage between wild horses and livestock would result in the following desired use level:

$$\frac{55\% \text{ (yearlong use level)}}{2} = \mathbf{27.5\ \%}$$

E. Potential Actual Use (AUMs) Calculation for Sand Canyon and Buckeye Allotments. The potential actual use (i.e., potential stocking level) of wild horses and livestock necessary to bring the average utilization to 55% is calculated below.

$$\frac{\text{Actual Use (AUMs)}}{\text{Average Utilization (\%)}} = \frac{\text{Potential Actual Use (AUMs)}}{\text{Desired Average Utilization (\%)}}$$

$$\frac{\text{588 AUMs (from C, above)}}{\text{27.49\% (from B, above)}} = \frac{\text{Potential Actual Use}}{\text{27.5\% (from D, above)}}$$

588 AUMs = ***Potential Actual Use (Potential Stocking Level)***

F. Separating AUMs by Allotment. The AUMs are separated below based on acres grazed by wild horses as determined from use pattern mapping data (refer to Section A, page II -1)

$$\text{Potential Stocking Level (Section E)} \times \frac{\text{Acres grazed in Allotment}}{\text{Total acres grazed}} = \text{Allotment AUMs}$$

[1] *Rangeland Monitoring Analysis, Interpretation, and Evaluation* (November, 1985) Appendix 1, page 52 & 53.

588 AUMs X $\frac{\text{2,468 Acres (Sand Canyon Allot.)}}{\text{15,252 Acres}}$ = *95 AUMs (Sand Canyon Allot.)*

588 AUMs X $\frac{\text{12,784 Acres (Buckeye Allotment)}}{\text{15,252 Acres}}$ = *493 AUMs (Buckeye Allotment)*

APPENDIX IIB

CALCULATION OF HORSE POPULATION LEVEL (AML) AT THE DESIRED FORAGE UTILIZATION LEVELS

	HORSE GROUP				
	Buckeye / Sand Canyon	Eldorado / Hackett Canyon	Clifton	Churchill Canyon/ Mill Canyon/ Rawe Peak	Sunrise
PRESENT POPULATION (Number of horses):	49	43	68	164	35
PRESENT FORAGE PRODUCTION (AUMs)	588	516	816	1968	420
PRESENT AVERAGE UTILIZATION:	27.8%	38.5%	49.8% *	68.1% *	72.5%
"PRESENT MULTIPLE" (from Table 2)	423260	345010	669600	1349830	187620
DESIRED UTILIZATION:	27.5%	27.5%	27.5%	27.5%	27.5%
ACRES GRAZED WITHIN HMA:	15252	8957	12770	12522	2588
CALCULATION OF "DESIRED MULTIPLE" (Acres grazed within HMA, multiplied by the 27.5% Desired Utilization)	419430	246318	351175	344355	71170
CALCULATION OF AUMS POTENTIALLY PRODUCED AT "DESIRED MULTIPLE" **	583	368	428	502	159
NUMBER OF HORSES SUPPORTED BY FORAGE AT DESIRED UTILIZATION:	49	31	36	42	13

ALLOWABLE MANAGEMENT LEVEL (AML) AT THE DESIRED UTILIZATION LEVEL	2040	AUMs
(Sum of forage in AUMs for each horse group at desired level, divided by 12 months):	170	horses

* INSIDE THE HMA. THERE IS ADDITIONAL UTILIZATION OUTSIDE THE HMA FOR THESE HORSE GROUPS.

** SOLVING FOR "ALLOWABLE USE" IN THE EQUATION: $\frac{\text{PRESENT PRODUCTION}}{\text{"PRESENT MULTIPLE"}} = \frac{\text{"ALLOWABLE USE"}}{\text{"DESIRED MULTIPLE"}}$

APPENDIX IIIA
USE / UTILIZATION SUMMARIES

1980

	USE (AUMs)	UTILI–ZATION	POTENTIAL AUMs TOTAL**	POTENTIAL AUMs FEDERAL***
SHEEP & DEER*	6965	29.6%	11752	7622
HORSES	2100	32.5%	3232	2096

1981

	USE (AUMs)	UTILI–ZATION	POTENTIAL AUMs TOTAL**	POTENTIAL AUMs FEDERAL***
SHEEP & DEER*	6534	31.0%	10541	6837
HORSES	2100	20.6%	5104	3311

1984

	USE (AUMs)	UTILI–ZATION	POTENTIAL AUMs TOTAL**	POTENTIAL AUMs FEDERAL***
SHEEP & DEER*	3568	9.0%	19923	12922
CATTLE & HORSES	3016	18.1%	8335	5406

* Deer use is estimated at 400 AUMs and is added to the known sheep use, as forage use by mule deer was not separated from forage use by sheep.

** These figures represent the forage capacity (at a 50% utilization level) for the indicated animal if there were no other animals competing for forage in the allotment. The calculation is: $\frac{\text{"USE (AUMs)"}}{\text{"UTILIZATION"}}$ "POTENTIAL AUMs" 50% Utilization

*** Note that the allotment is about 65% federal land (Appendix I), which is used in calculating the "POTENTIAL AUMs FEDERAL"

APPENDIX IIIB
1980 USE / UTILIZATION FOR BUCKEYE ALLOTMENT

MAP UNIT ACRES	1=Slight.. ..5=Severe UTIL.	UTIL. MID-POINT	* %SHEEP	* %HORSE	SHEEP MULT.**	HORSE MULT**
1102	4	70	50.0%	50.0%	38578	38578
362	3	50	0.0%	100.0%	0	18076
3790	3	50	50.0%	50.0%	94746	94746
9091	4	70	66.7%	33.3%	424250	212125
1971	2	30	100.0%	0.0%	59123	0
4622	1	10	0.0%	100.0%	0	46223
6294	4	70	0.0%	100.0%	0	440586
1540	1	10	0.0%	100.0%	0	15405
163	5	90	100.0%	0.0%	14682	0
25752	5	90	65.2%	34.8%	1511540	806155
3731	4	70	0.0%	100.0%	0	261155
6144	1	10	0.0%	100.0%	0	61442
3660	2	30	50.0%	50.0%	54904	54904
180	2	30	0.0%	100.0%	0	5396
754	3	50	0.0%	100.0%	0	37696
35923	4	70	50.0%	50.0%	1257320	1257320
5248	1	10	100.0%	0.0%	52483	0
549	5	90	100.0%	0.0%	49441	0
4617	1	10	0.0%	100.0%	0	46170
5344	5	90	20.0%	80.0%	96184	384735
3315	4	70	0.0%	100.0%	0	232021
1260	5	90	50.0%	50.0%	56702	56702
423	5	90	50.0%	50.0%	19046	19046
TOTAL: 125836					3728998	4088480

* Each map unit contained one or more transects which noted type of animal use. Each noted use was counted equally and percent use determined accordingly: if a unit had two transects, one noted sheep use and one noted use by both sheep and horses, then this was calculated as 2 sheep : 1 horse, or %SHEEP = 66.7% and %HORSE = 33.3%.

** The "SHEEP (or HORSE) MULT" is the multiple of "ACRES" X "UTIL.ization MIDPOINT" X "% SHEEP (or HORSE)" use in that unit by the sheep (or horses)

Summary

TOTAL ACRES	TOTAL SHEEP MULTIPLE	TOTAL HORSE MULTIPLE	AVERAGE SHEEP UTIL.***	AVERAGE HORSE UTIL.***
125836	3728998	4088480	29.6%	32.5%

*** Average Sheep (or Horse) utilization percentage is "TOTAL SHEEP (or HORSE) MULTIPLE" divided by "TOTAL ACRES".

APPENDIX IV

BUCKEYE ALLOTMENT
LAND STATUS AND ACREAGE

LAND STATUS	DOUGLAS COUNTY ACRES	DOUGLAS COUNTY PERCENT OF LAND TYPE	CARSON CITY CO. ACRES	CARSON CITY CO. PERCENT OF LAND TYPE	LYON COUNTY ACRES	LYON COUNTY PERCENT OF LAND TYPE	TOTAL	TOTAL PERCENT OF ALLOTMENT
PUBLIC								
VACANT	59,378	75.3%	19,448	24.7%	28	0.0%	78,854	62.1%
PWR	40	6.5%	576	93.5%	0	0.0%	616	0.5%
R&PP LEASE	259	100.0%	0	0.0%	0	0.0%	259	0.2%
RESERVOIR R/W	0	0.0%	317	100.0%	0	0.0%	317	0.2%
MATERIAL SITES	320	100.0%	0	0.0%	0	0.0%	320	0.3%
RECLAMATION WITHDRAWAL	1,242	100.0%	0	0.0%	0	0.0%	1,242	1.0%
TOTAL	61,239	75.0%	20,341	24.9%	28	0.0%	81,608	64.2%
INDIAN TRUST	21,618	82.3%	4,649	17.7%	0	0.0%	26,267	20.7%
PRIVATE								
BUCKEYE RANCH	8,893	100.0%	0	0.0%	0	0.0%	8,893	7.0%
OTHER	6,546	81.0%	1,302	16.1%	230	2.8%	8,078	6.4%
TOTAL	15,439	91.0%	1,302	7.7%	230	1.4%	16,971	13.4%
COUNTY	990	100.0%	0	0.0%	0	0.0%	990	0.8%
		PERCENT OF ALLOTMENT		PERCENT OF ALLOTMENT		PERCENT OF ALLOTMENT		
TOTAL	100,528	79.1%	26,292	20.7%	258	0.2%	127,078	

APPENDIX V

BUCKEYE ALLOTMENT RANGE IMPROVEMENTS

Project Number	Project	Location	Condition	Maintenance Resoponsibility
0186	Badger Spring	T15N, R21E, Sec. 29	Poor	Permittee
0264	Brunswick Canyon Chaining	T15N, R21E, Secs. 27, 28, 33, 34	Fair	BLM
0339	Buckeye Creek Well	T13N, R21E, Sec. 19	Unknown	Permittee
0345	Williams Canyon Well	T13N, R21E, Sec. 32	Unknown	Permittee
4297	Fish Spring Well	T13N, R21E, Sec. 28	Unknown	Permittee
4342	Bull Run Spring	T15N, R21E, Sec. 23	Poor	Permittee
4346	June Ellen Guzzler	T15N, R21E, Sec. 34	Good	BLM
4416	Sullivan Canyon Guzzler	T15N, R21E, Sec. 27	Good	BLM
4497	Sunrise Cattleguard	T14N, R22E, Sec. 9	Good	BLM
5001	Pinenut Mtn. Fence	T14N, R22E, Secs. 6, 7, 8, 15, 16	Fair	Permittees
5116	Pheno Plot No. 1	T13N, R20E, Sec. 1	Fair	BLM
5117	Pheno Plot No. 2	T14N, R21E, Sec. 34	Fair	BLM
5121	Pheno Plot No. 3	T14N, R22E, Sec. 19	Fair	BLM
6391	Buena Suerte Spring Fence	T11N, R22E, Sec. 9	Good	BLM

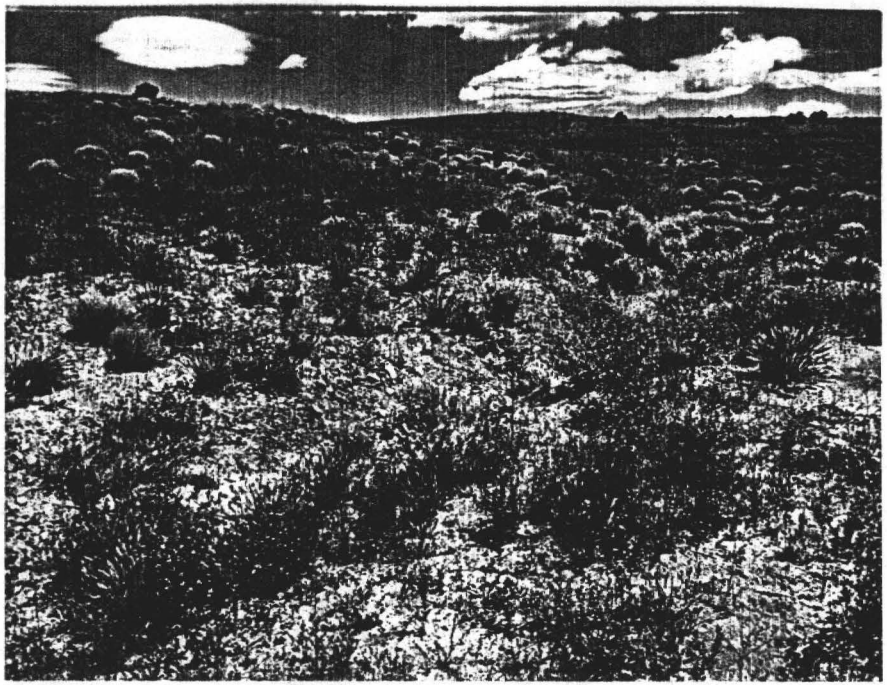


Photo #1: Gully healed following Johnson Lane burn.

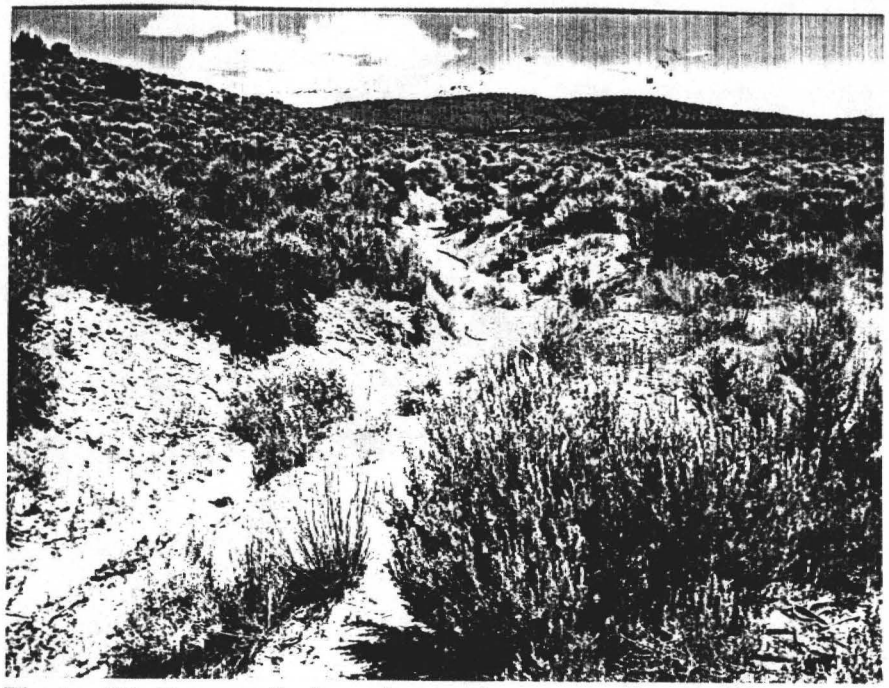


Photo #2: Raw gully in unburned area next to gully in photo 1.

Photo #3: Raw gully in juniper/pinyon zone

Photo #8: North slope stabilized with thick pinyon needles.

Photo #5: View of south slope stabilized where burned.

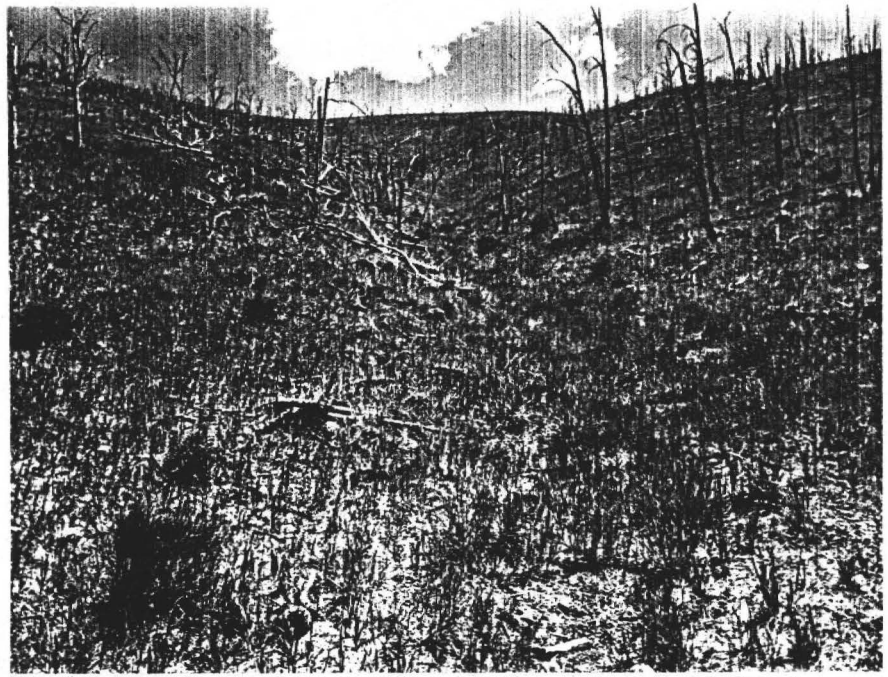


Photo #6: North slope gully completely healed following burn.

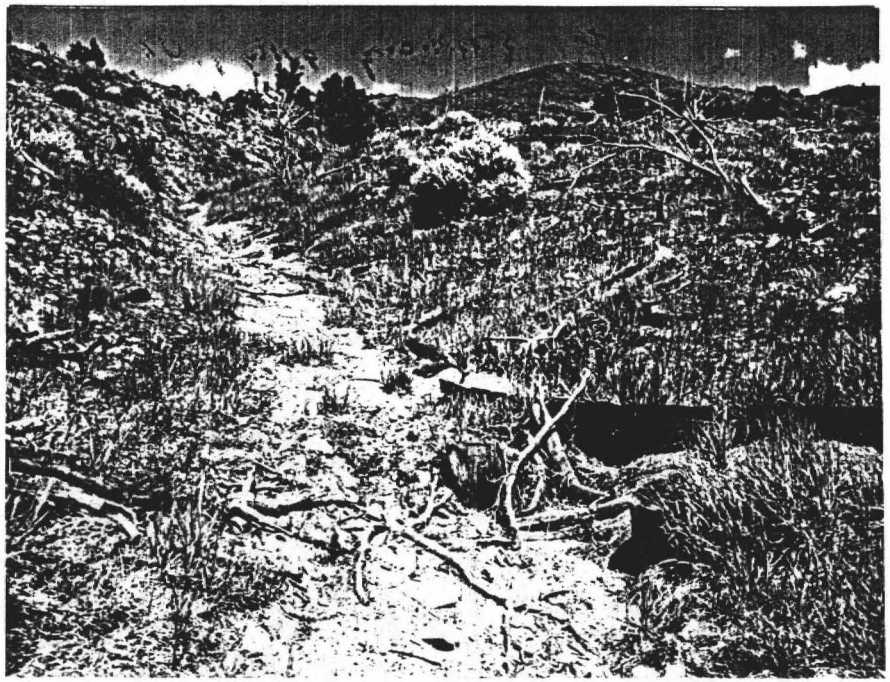
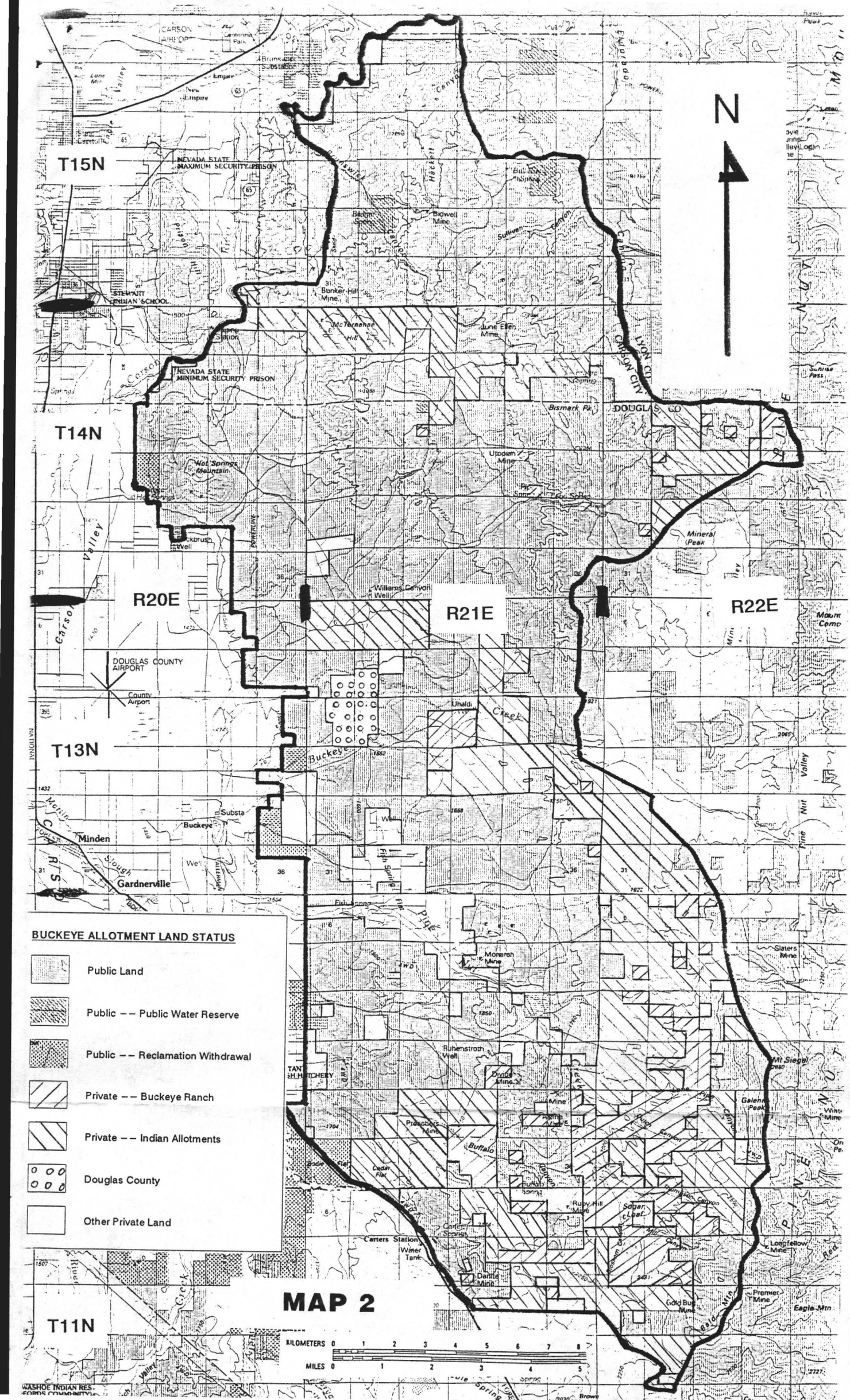


Photo #7: Main drainage healing following Slater burn.

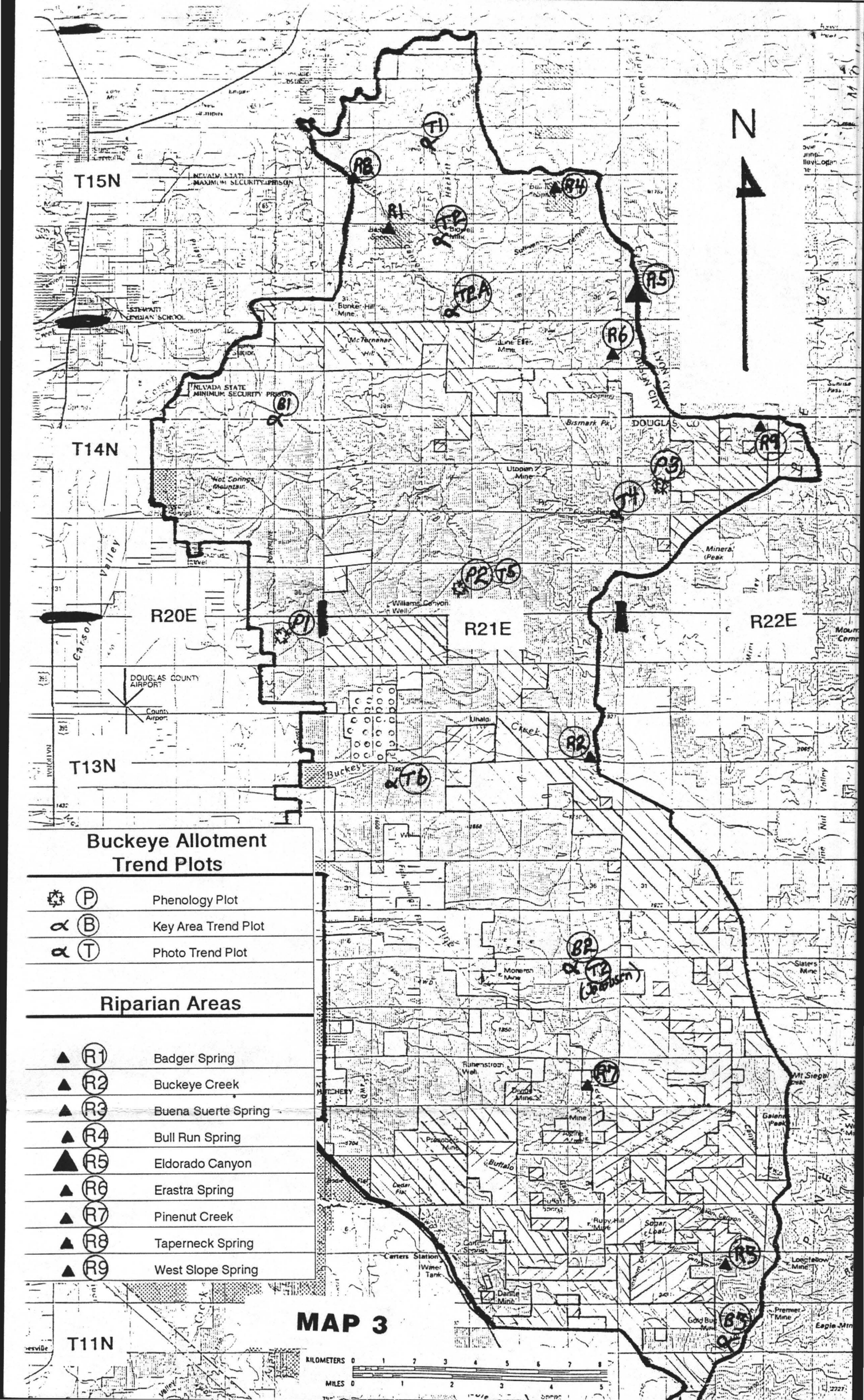
Photo #8: Higher elevation north slope returning to brush.

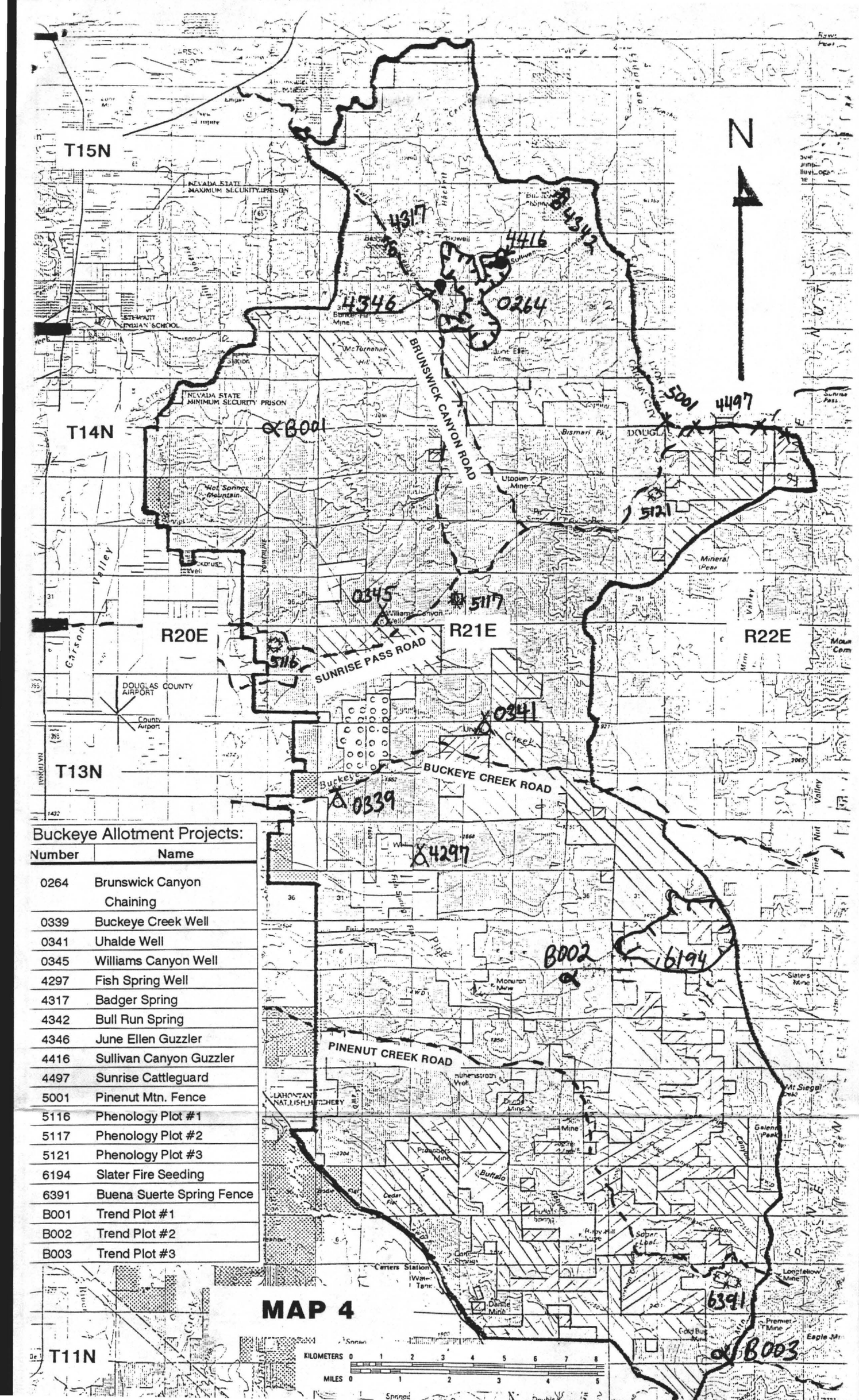


BUCKEYE ALLOTMENT LAND STATUS

- Public Land
- Public -- Public Water Reserve
- Public -- Reclamation Withdrawal
- Private -- Buckeye Ranch
- Private -- Indian Allotments
- Douglas County
- Other Private Land

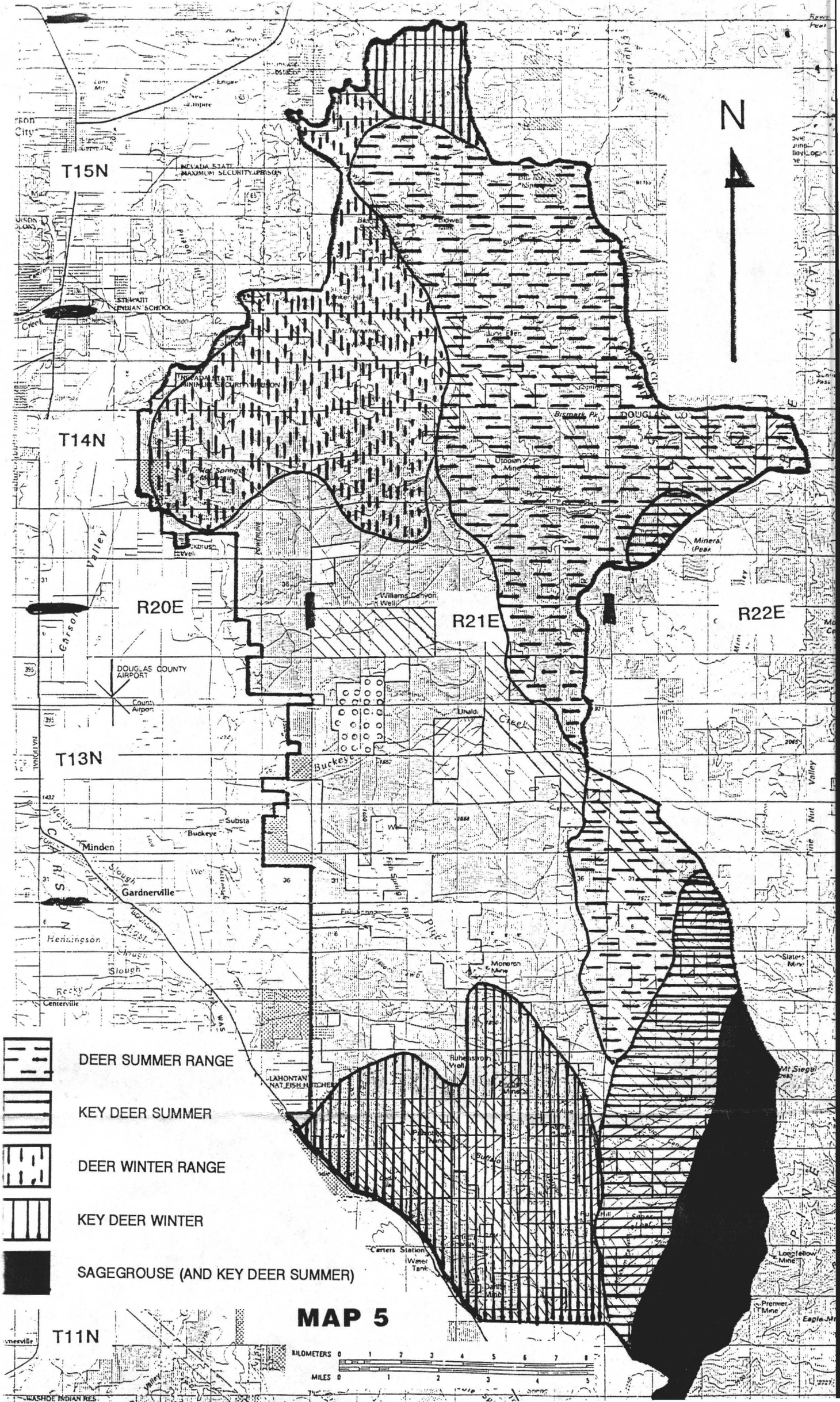
MAP 2

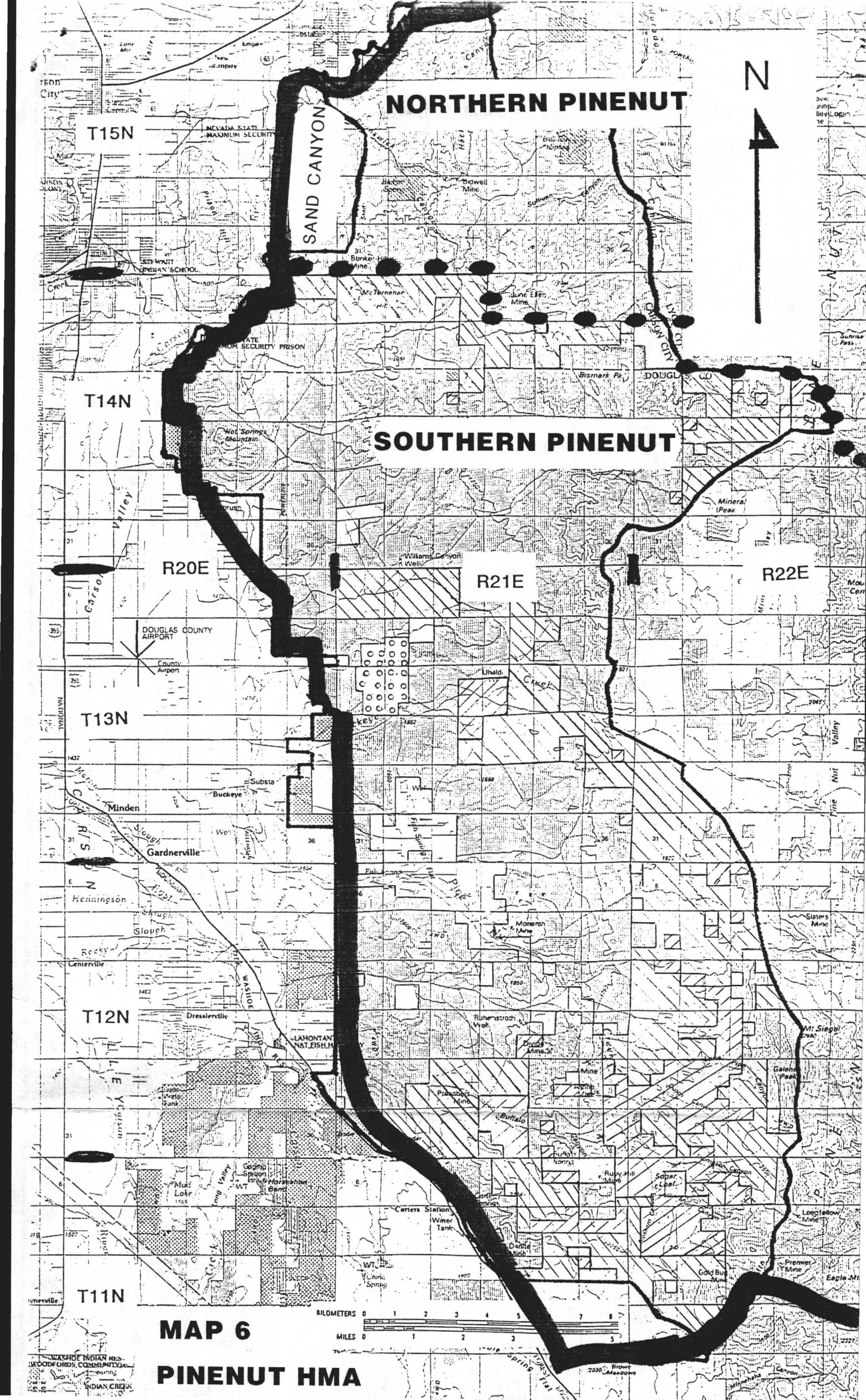

N
T15N
T14N
T13N
T11N
R20E
R21E
R22E
T1
T2
T2A
T3
T4
T5
T6
P1
P2
P3
B1
B2
R1
R2
R3
R4
R5
R6
R7
R8
R9
Buckeye Allotment
Trend Plots
Phenology Plot
Key Area Trend Plot
Photo Trend Plot
Riparian Areas
Badger Spring
Buckeye Creek
Buena Suerte Spring
Bull Run Spring
Eldorado Canyon
Erastra Spring
Pinenut Creek
Taperneck Spring
West Slope Spring
MAP 3
KILOMETERS
MILES



Buckeye Allotment Projects:

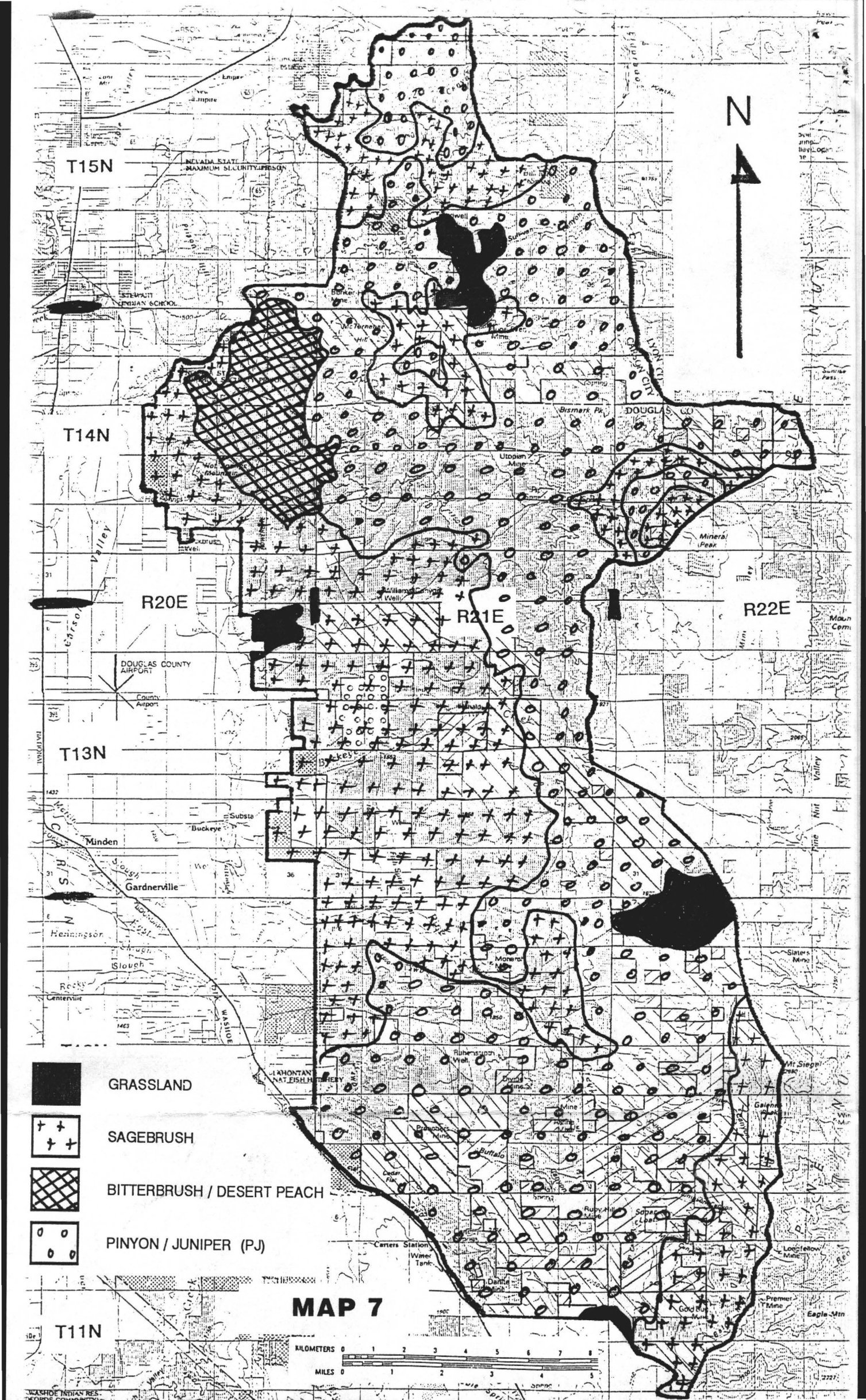
Number	Name
0264	Brunswick Canyon Chaining
0339	Buckeye Creek Well
0341	Uhalde Well
0345	Williams Canyon Well
4297	Fish Spring Well
4317	Badger Spring
4342	Bull Run Spring
4346	June Ellen Guzzler
4416	Sullivan Canyon Guzzler
4497	Sunrise Cattleguard
5001	Pinenut Mtn. Fence
5116	Phenology Plot #1
5117	Phenology Plot #2
5121	Phenology Plot #3
6194	Slater Fire Seeding
6391	Buena Suerte Spring Fence
B001	Trend Plot #1
B002	Trend Plot #2
B003	Trend Plot #3


N
T15N
T14N
T13N
T11N
R20E
R21E
R22E
DEER SUMMER RANGE
KEY DEER SUMMER
DEER WINTER RANGE
KEY DEER WINTER
SAGEGROUSE (AND KEY DEER SUMMER)
MAP 5
KILOMETERS 0 1 2 3 4 5 6 7 8
MILES 0 1 2 3 4 5
Minden
Gardnerville
Buckeye
Centerville
Henningson
Slough
Carson River
Buckeye Creek
Douglas County Airport
Williams Canyon Well
Utooam Mine
Bismark Pk.
Moneran Mine
Carters Station
Water Tank
Longfellow Mine
Premier Mine
Mt. Siegel
Slaters Mine
Minera Peak
Nevada State Maximum Security Prison
Stewart Indian School
Lahontan Nat. Fish Hatchery
Washoe Indian Res.



MAP 6

PINENUT HMA


N
T15N
T14N
T13N
T11N
R20E
R21E
R22E
DOUGLAS COUNTY AIRPORT
Minden
Gardnerville
Carson Valley
GRASSLAND
SAGEBRUSH
BITTERBRUSH / DESERT PEACH
PINYON / JUNIPER (PJ)
MAP 7
KILOMETERS 0 1 2 3 4 5 6 7 8
MILES 0 1 2 3 4 5

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BUCKEYE ALLOTMENT EVALUATION
ERRATA AND ATTACHMENTS

Insert the attached Sections VII and VIII after page 19. In the Table of Contents, insert the following after Section VI.

VII. Consultations

On July 19, 1993, a letter was sent to persons and organizations that have shown interest in resource management in the Walker Resource Area. The purpose of the letter was to gather additional information and to determine who would be interested in participating in the evaluation process on nine allotments in the northern Pine Nut Mountain Range. Buckeye was among these allotments.

Sections I (Introduction) through VI (Technical Recommendations) of this evaluation were sent out for public review on December 15, 1994. Fifteen copies were sent to the Nevada State Clearinghouse for distribution among state agencies. In addition, the following were sent copies of this evaluation.

Buckeye Ranch
Nevada Wildlife Federation
Natural Resources Defense Council
Carson City District Grazing Advisory Board
Resource Concepts Inc.
Rutgers University, S.I. Newhouse Center of Law and Justice
Wild Horse Organized Assistance
The Honorable Barbara Vucanovich
The Honorable Richard Bryan
Paul Clifford
Craig C. Downer
American Mustang and Burro Assoc.
D.A. Anderson Estate
Nevada Commission for the Preservation of Wild Horses
Nevada Division of Wildlife
The Wildlife Society
Sierra Club, Toiyabe Chapter
Nevada Cattlemen's Association
Nevada Woolgrowers Association
Washoe Tribe
Bureau of Indian Affairs, Western Nevada Agency
U.S. Fish and Wildlife Service
The Honorable Harry M. Reid
Nevada Humane Society
Steven Fulstone
Ms. Edie Wilson
Humane Society of Southern Nevada
L.I.F.E Foundation
Animal Protection Institute
Nevada Humane Society

Comments were received from the Bureau of Indian Affairs (BIA), the Nevada State Historic Preservation Officer, the Nevada Division of Water Resources, the Nevada Division of Wildlife (NDOW), The Commission for the Preservation of Wild Horses (Commission), and Wild Horse Organized Assistance (WHOA). Comments which pertain to the health of the land or to assessment of health are presented and discussed below.

Comment: *The appropriate management level for the wild horse herd was determined by weight averaging use pattern mapping data. This procedure assumes even production and utilization of the allotment. Computations will show that over use of key or critical habitats is compromised by the massive acres of slight and light use on the allotment.* (NDOW)

The appendix IIA, page II-1, presents a potential stocking rate computation that assumes uniform production and uniform utilization. Use pattern mapping for all years were not considered. Data collected in 1993 for horses, and other data in this document, failed the criteria for use of weight averaging use pattern mapping data. Weight averaging discredits the smaller portions of the allotment suffering heavy use. (Commission)(WHOA)

Response: The "Weighted Average Utilization" technique is a standard Bureau method and is detailed on page 52 of TR 4400-7 (BLM, 1985). We have further refined the method by using only the grazed areas in the averaging process, which keeps unfavorable areas from artificially lowering the calculated utilization. This produces results which correlate quite well with professional observations of the adequacy of forage in a number of different areas.

Comment: *Wild horse numbers and animal unit months are illustrated in the table. Did the numbers of horses include foals? If a cow and calf are equivalent to an AUM, is a horse and foal equivalent to an AUM?* (Commission)

Page 13, The wild horse animal unit months are depicted, but there is no explanation of whether those numbers include foals. Your cow/calf are equivalent to an AUM, is a mare/foal equivalent to an AUM? (WHOA)

Response: At the time of the aerial census wild horses counted as "foals" are usually old enough, or soon will be old enough to be consuming substantial amounts of forage. Therefore foals are counted as an animal unit. In calculating livestock AUMs for use in analysis, a calf may also be counted as an animal unit if it develops to a stage where it will be consuming substantial amounts of forage.

Comment: *Wild horse management on this allotment has been basically for the protection of private lands. Major gathers in the 1980's resulted in the removal of 803 horses outside of the herd management area. These reductions in combination with domestic sheep and cattle use in 1984 and 1985 should clearly define the carrying capacity for this allotment. However, Appendix IIA only uses data collected in 1993 when the allotment was only used by wild horses.* (Commission)

Actual use data indicates the allotment was used by wild horses, sheep, cattle and wildlife during 1984 and 1985. These data could more accurately determine the allotment's carrying capacity and suitability for cattle. Use of only 1993 actual use for wild horses defeats the purpose of monitoring versus a one time inventory process. (NDOW)

Response: Data on use and utilization from several different years are analyzed on pages 7 and 8 and summarized in Appendices II and III. Appendix IIA presents the best data we have on utilization within the herd management area; this data was recorded using careful use pattern mapping during a year in which forage production was approximately average, and was collected for all allotments containing portions of the Herd Management Area. Appendix IIIA summarizes the utilization data from 1980, 1981, and 1984. As noted in the discussion on page 8, 1984 was an unusually high production year and so use of this data in estimating stocking rates would result in overallocating the forage during more normal years (see Table IIIA). No use pattern mapping was done in 1985, so this year cannot be used in the calculations.

Comment: *Mahogany is a key species for mule deer.* (NDOW)

Response: Mountain mahogany *(Cercocarpus ledifolius)* is certainly a mule deer forage plant, but has not been identified as a *key species* on the Buckeye allotment.

Comment: *Data have not been presented to support maintenance of the active use for sheep and addition of cattle AUMs.* (NDOW)

Recommendations to curtail the Pine Nut Wild Horse Herd at the present level, maintain active preference for sheep and initiate 2200 AUMs for cattle is arbitrary. (Commission)

Your recommendations to curtail the wild horses, maintain active preference for sheep and initiate 2200 AUMs for cattle, are arbitrary. (WHOA)

Response: The reviewers seem to have misinterpreted a very important point in the evaluation: any grazing by cattle would not be *in addition to* the sheep use, but rather would be *instead of* the sheep use. And considerable data was presented showing that although the allotment produces 5000 AUMs of sheep forage, our best estimate for cattle forage is 2200 AUMs because of the difference in diet of the two types of livestock.

Comment: *Stopping "hot season" grazing of cattle on riparian areas will mitigate the adverse impacts. This action must assure only 55 percent utilization annually by combined use of cattle, sheep and wild horses.* (NDOW)

Response: The commentors seem to be mixing two very different riparian management techniques into one recommendation. The *55% utilization standard* is a sensible technique for managing a season-long riparian pasture, such as a large meadow

which forms a single management unit. The maximum 55% utilization takes care of the health of herbaceous species (the recommendation is to drop to 40% utilization if woody species are important in the pasture). But on the typical rangeland situation the riparian zones comprise a tiny fraction of the land (and forage) base and the utilization standard becomes meaningless. Here the *timing technique*, the avoidance of August - September "hot season" grazing works well and is an excellent recommendation.

Comment: *Winter use must avoid bitterbrush communities important to wildlife.* (NDOW)

Response: Since wildlife make only slight (under 20%) use of bitterbrush in this allotment, demanding absolute avoidance of bitterbrush by livestock seems to have little basis. The evaluation recommendation to limit livestock utilization to 25% should quite adequately provide for all present and future wildlife requirements. Health of the bitterbrush plants is more effectively addressed through tree removal in those areas (widespread in this allotment) where the trees are beginning to choke out brush needed by wintering deer.

Comment: *A number of sites are cited that should have water rights established pursuant to Chapters 533 and 534 of the NRS if they are to be developed. Additionally, one well has been identified as needing to be properly plugged and abandoned. This well is identified on USGS Quad sheets as "Rhuenstroth Well".* (List of projects and water rights status attached showing Fish Spring Well with no water rights and other wells with documented non-use) (Nevada Division of Water Resources)

Response: Thanks! That is good information, some of which we did not have in our files. We'll need to pursue additional water rights in the allotment.

Comment: *How will it be determined when horses need to be removed?* (from the southern Pine Nut) *Given the transitory nature of horses and that they cannot distinguish boundary lines, how will the BLM determine a resident band of horses, on the southern Pine Nut HMA? How much monitoring of the southern Pine Nut HMA will be done by the BLM to ensure no resident bands of horse establish themselves?* (U.S. Bureau of Indian Affairs)

Response: The Bureau Wild Horse Specialist, Range Specialists, and Wildlife Biologists note where horse bands are seen, especially when outside their normal area. The Wild Horse Specialist makes a census flight by helicopter, usually annually. With this information from a variety of sources the Wild Horse Specialist is able to determine when a band has established itself outside the Herd Area, and at this time would begin the process leading to removal.

Additionally, when notified that wild horses have moved onto private lands where they are not wanted, the Bureau will remove the horses. Unless we receive a written complaint, however, we will not remove horses without periodic observations which show the horses are establishing outside their Herd Area: the best (most vigorous, healthiest) bands of horses are the most likely to occasionally wander far from their accustomed home range.

Comment: *The allottees do not wish to have any livestock graze on their allotments. If the grazing permit is converted to cattle, how will the permittee prevent the cattle from grazing on the allotments? As you know sheep are herded and control of where they graze can be accomplished much more effectively than cattle.* (U.S. Bureau of Indian Affairs)

Response: The Indian allotments are somewhat intermingled with public land, but they are totally intermingled with the private land of the permittee. These permittee-owned lands contain most of the forage base inside the allotment boundary and the ranch has grazed these with cattle for the past 10 years. If the Washoe allottees are firm in their desire to have no livestock, then the BLM's decision that the public lands are suitable for a limited degree of cattle grazing will have little impact on Bentley Ranch's problems. The BLM permittee has always been responsible for dealing satisfactorily with the Bureau of Indian Affairs and that will not change with type of livestock being grazed.

VIII. Management Actions Selected

Due to the necessity of implementing the wild horse decisions on a herd management area basis, only one Multiple Use Decision will be issued for all nine allotments in the Pine Nut Herd Management Area.

For the Buckeye allotment short term technical recommendations 1, 2, and 4, which set stocking levels and grazing strategies will be included in the Proposed Multiple Use Decision. Implementing recommendation 4 causes technical recommendation 3 on livestock use of bitterbrush to become irrelevant (livestock would not be in the deer winter range until after October).

Long term technical recommendation 6 for improving watershed conditions above subdivision areas will be included in the Proposed Multiple Use Decision. Technical recommendation 7 (continue classifying as an Improve category allotment) is currently implemented. The other long term recommendations are good ideas, but are not appropriately implemented through this decision: implementing these will require further planning in the form of a Pine Nut land use plan amendment.

est. 1994

PINE NUT PROPOSED MULTIPLE USE DECISION

The Record of Decision for the Reno Grazing Environmental Impact Statement (GEIS) was issued on December 21, 1982. This document established the multiple use goals and objectives which guide management of public land in the allotments contained within the Pine Nut Herd Management Area (HMA). The Reno Rangeland Program Summary (RPS), issued on May 30, 1984, identified allotment specific objectives.

As identified in the Reno GEIS and Reno RPS, monitoring has been conducted on these allotments to determine if existing multiple uses for the allotments were consistent with the attainment of the objectives. Monitoring data has been collected and analyzed through the allotment evaluation process to determine what changes in existing management are required in order to meet specific multiple use objectives for these allotments.

Through the consultation, coordination, and cooperation process (CCC), input from the interested parties has been considered. Based on the evaluation of the monitoring data, technical recommendations contained within the allotment evaluations, and input through the CCC process, my proposed decision is presented below.

BUCKEYE ALLOTMENT
LIVESTOCK GRAZING MANAGEMENT DECISION

Decisions relating to the grazing of livestock on public lands in the Buckeye Allotment are as follows:

A. In accordance with §4130.6-1(a) the active preference for sheep will be maintained at 4973 AUMs. ÷ 5 = 995 conversion II

B. In accordance with §4130.6-1(a), if cattle are grazed instead of sheep, the active preference for cattle initially will not exceed 2200 AUMs. In accordance with §4110.3, this preference will remain in effect for five years, after which time a final active preference will be established based on additional monitoring data.

C. In accordance with §4130.6-1 (a), if both sheep and cattle are grazed, the initial active preference will be proportioned in the direct ratio of 4973 sheep AUMs equalling 2200 cattle AUMs. For example, if the ranch uses half the preference for sheep grazing and half for cattle, this would result in 2486 sheep AUMs and 1100 cattle AUMs initial active preference.

D. In accordance with §4130.6, §4130.6-1(a) and §4130.6-2, cattle will be authorized in the summer use portion of the allotment in conjunction with private lands. Livestock shall leave the riparian zones by mid-July. Cattle will be authorized in the west portion of the allotment only in the winter (November 1 through March 31). Grazing within the HMA will not be authorized by livestock during the growing season (April 1 through July 15).

RATIONALE

Utilization studies detailed in the evaluation showed the allotment provided full preference sheep grazing use (4973 AUMs) at light or moderate use levels. This can continue with application of good forage management techniques.

Utilization studies also showed an estimated 2700 AUMs of grass forage within the entire allotment, which includes the portion within the HMA. Excluding the potential stocking level for wild horses, there is an estimated 2200 AUMs available for cattle. Five years of studies will provide adequate information to determine a final active preference for cattle.

The narrow band of public land in the summer use area (southeast portion of the allotment) is not practically grazed by itself by cattle (although herded sheep could use the area as a unit). But used in conjunction with the lower, primarily private, canyons, this area could comprise the high, steep portion of a three-pasture unit requiring minimal fencing to be effective.

Cattle will tend to leave the west side of the allotment anytime the valley below is green; but in wintertime the valley will be both brown and colder than the rangeland and cattle will remain on the allotment. The north end of the allotment which is within the HMA already receives growing season use by wild horses, so that additional growing season use would result in significant overgrazing which would diminish the grass vegetation.

CHURCHILL CANYON ALLOTMENT
LIVESTOCK GRAZING MANAGEMENT DECISION

Decisions relating to the grazing of livestock on public lands in the Churchill Canyon Allotment are as follows:

A. In accordance with §4130.6-1(a), the active preference for livestock will be maintained at 1074 AUMs. In accordance with §4410.3, continue to use standard Actual Use/Utilization study techniques over a three year period to refine this estimate and establish a preference for cattle which is sustainable and allows plenty of forage for wild horses and mule deer.

RATIONALE

The 1074 AUMs for livestock is a reasonable initial stocking level based upon the figures shown in the utilization study contained in Appendix IV of the evaluation. The Bureau will obtain further data to refine the estimate and establish an allocation which is sustainable.

CLIFTON ALLOTMENT
LIVESTOCK GRAZING MANAGEMENT DECISION

Decisions relating to the grazing of livestock on public lands in the Clifton Allotment are as follows:

A. In accordance with §4110.3-2(b) and §4130.6-1(a), the active preference for cattle will be adjusted from 772 AUMs to 613 AUMs. In accordance with §4110.3-3(a) &(b), this reduction in active preference will be phased in over a five year period, beginning with the effective date of the Final Multiple Use Decision (1995). The reduction will be implemented as follows:

1995 From 772 AUMs to 719 AUMs
1997 From 719 AUMs to 666 AUMs
1999 From 666 AUMs to 613 AUMs

2/10/95

BOB MILLER
Governor

STATE OF NEVADA

CATHERINE BARCOMB
Executive Director

COMMISSION FOR THE PRESERVATION OF WILD HORSES

255 W. Moana Lane
Suite 207A
Reno, Nevada 89509
(702) 688-2626

February 10, 1995

Mr. John O. Singlaub
District Manager
Carson City District
1535 Hot Springs Road
Carson City, Nevada 89706-0638

Subject: Buckeye Allotment Evaluation

Dear Mr. Singlaub:

We wish to provide specific comment to this allotment evaluation that presents data and analysis to establish an appropriate management level for the Pine Nut Wild Horse Herd. Providing the public with all the allotment evaluations and multiple use decisions affecting this herd is an excellent approach for consultation. It is disturbing that the Draft Pine Nut Herd Removal Plan and Environmental Assessment presented prior to the deadline for the comments of this allotment evaluation. It would appear that the gather and re-structuring of this herd would be completed prior to full consultation of the supportive documents and decisions affecting the numbers and composition of the Pine Nut Wild Horse Herd.

Wild horse management on this allotment has been basically for the protection of private lands. Major gathers in the 1980's resulted in the removal of 803 horses outside of the herd management area. These reductions in combination with domestic sheep and cattle use in 1984 and 1985 should clearly define the carrying capacity for this allotment. However, Appendix IIA only uses data collected in 1993 when the allotment was only used by wild horses.

The purpose and need for this evaluation was to determine an appropriate management level for the horse herd and determine the allotment's suitability for cattle. Failure to use all available data defeats the purpose of the evaluation and the technical recommendations simply replaces the removed horses with cattle.

COMMENTS

Page 11, Riparian Habitat

Bureau of Land Management land use plans, regulations and policy establishes riparian habitat as a limiting factor to livestock and wild horse grazing on public lands. Implementation of the "Riparian-Wetland Initiative for the 1990's" complements the Walker Resource Area Record of Decision. We assume these sites represent the riparian resource of the allotment. We support the use of these data to determine proper stocking rates and wild horse appropriate management level for this allotment.

Page 13, Census

Wild horse numbers and animal unit months are illustrated in the table. Did the numbers of horse include foals? If a cow and calf are equivalent to an AUM, is a horse and foal equivalent to an AUM?

Page 15, Wild Horses

We recognize the amount of private and Bureau of Indian lands within the boundaries of this allotment. Since wild horses and domestic sheep have little diet overlap or competition, we are confused about the degree of complaints by landowners. Please provide us copies of all the complaints that required the previous and present need for gathers through and including this evaluation period.

Page 16, Livestock

The decision to abandon domestic sheep grazing was a financial determination by the ranch. Since the evaluation determined that no reduction in grazing is required, did the District accept non-use for conservation purposes or will the permit be retired after three years of non-use?

Page 16 and 17, Technical Recommendations

Recommendations to curtail the Pine Nut Wild Horse Herd at the present level, maintain active preference for sheep and initiate 2200 AUMs for cattle is arbitrary. As pointed out in our comments the District did not use available data, did not determine suitability for cattle on the allotment and did not establish a carrying capacity for the allotment.

Page II-1, Appendix IIA

This appendix presents a potential stocking rate computation that assumes uniform production and uniform utilization. Use pattern mapping for all years were not considered. Data collected in 1993 for horses, and other data in this document, failed the criteria for use of weight averaging use pattern mapping data. As found in this computation, weight averaging discredits the smaller portions of the allotment suffering heavy use. Since livestock data was excluded from the computations, there is no rationale to support either sheep or cattle in the carrying capacity.

In summary, we hope our concerns and issues will be considered prior to your intent to enforce the premature gather plan in full force and effect. We encourage the District to consider our input prior to issuing a multiple use decision regarding this allotment.

Sincerely,

Catherine Barcomb
Director

February 10, 1995

Mr. John O. Singlaub
District Manager
Carson City District
1535 Hot Springs Road
Carson City, Nevada 89706-0638

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In summary, we hope our concerns and issues will be considered prior to your intent to enforce the premature gather plan in full force and effect. We encourage the District to consider our input prior to issuing a multiple use decision regarding this allotment.

Sincerely,

DAWN Y. LAPPIN
Director