

Warm Spring Allot.

Buck & Bald

m 7-8-92



United States Department of the Interior



BUREAU OF LAND MANAGEMENT

Ely District Office
HC 33 Box 33500
Ely, Nevada 89301-9408

IN REPLY REFER TO:

4400.3 (NV-047)

Wild Horse Organized Assistance
P.O. Box 555
Reno, NV 89502

Dear Participant:

We appreciate your interest in being involved in the allotment evaluation consultation process, and enclosed for your information and review is the draft Warm Springs Allotment Monitoring Evaluation. This evaluation is currently in draft form, and we are requesting your comments and input to be considered for inclusion in the final evaluation summary. We are particularly interested in additional management options or solutions that would also provide for meeting the allotment objectives listed in this document. We will be holding a meeting on July 8, 1992, at 1:30 p.m., at the Ely BLM office concerning this allotment, which we encourage you to attend.

We would appreciate your participation and solicit your continued involvement in the consultation process.

Sincerely,

Gene L. Drais

Gene L. Drais, Manager
Egan Resource Area

1 Enclosure

1. Warm Springs Draft Evaluation (36 pp)

DRAFT

WARM SPRINGS ALLOTMENT EVALUATION SUMMARY

I. INTRODUCTION

The Warm Springs Allotment (0606) is a category "I" allotment, involving 318,740 federal acres, 325,740 acres total, situated in the northwest corner of White Pine County. The allotment includes portions of Long Valley, Newark Valley, Buck and Bald Mountains, and small sections of the Diamond Mountains and Ruby Valley. Map 1 illustrates the general location of the allotment within the Egan Resource Area, and Map 2 depicts approximate allotment boundaries. The allotment boundary is partially fenced, and includes two small crested wheatgrass seedings and a wide variety of native range. The permittee is Mr. Dan Russell, who obtained the permit in 1980. In 1989, an Allotment Management Plan was initiated but not completed. The allotment is also covered in the Buck, Bald, Maverick and Diamond Mountains Habitat Management Plan (1989).

II. INITIAL STOCKING LEVEL

A. Livestock Use

The Warm Springs Allotment has a total grazing preference of 23,995 AUMs cattle use, subdivided into six areas (Table 1, Map 3). Since 1985, licensed use has been reduced to a maximum of 17,054 AUMs, based on a signed agreement between Dan Russell of Russell Ranches (current permittee), Dawn Lappin, director of Wild Horse Organized Assistance (WHOA), and the Ely District BLM (Appendix 1). In 1974, the preference was converted from a combination sheep and cattle license to a straight cattle preference. AUMs were converted straight across the board (1:1).

The cattle operation on this allotment has been year-round, with Newark and Long Valleys used as winter/spring range, and the Diamond and Buck/Bald Mountains for summer/fall use. Two crested wheatgrass seedings (3550 acres) also provide summer forage. Other than seasonal movement between the high country and the valleys, no formal grazing system is in use, due to the large size of the allotment and lack of division fencing. Sheep trail use through Newark Valley is licensed as a separate allotment.

Each of these use areas will be evaluated and discussed separately in the following discussion. Preference demand by use area and class of livestock are based on original adjudication maps and subsequent sheep to cattle conversions (Table 1).

Table 1. Preference demand (AUMs) for cattle by use area, Warm Springs Allotment.

<u>Unit agreement (AUMs)</u>	<u>Acreage</u>	<u>Preference (AUMs)</u>	<u>1985</u>
Diamond Mt.	5092	264	187
Newark Valley	34713	1224	870
Buck and Bald	130288	9646	6856
Ruby Valley	8954	840	597
Long Valley	114693	10811	7684
L. Valley Wash	<u>32000</u>	<u>1210</u>	<u>860</u>
Total	325740	23995	17054

B. Wild Horse Use

The allotment includes the majority of the Buck and Bald Wild Horse Herd Management Area (HMA) (Map 4). The Rangeland Program Summary (RPS) objective for this allotment is to provide habitat and forage for approximately 280 horses (3359 AUMs) within the Buck and Bald HMA. Estimated and censused wild horse numbers for those portions of the Buck and Bald HMA using the Warm Springs allotment are shown in Table 2.

Table 2. Buck & Bald HMA wild horse census data, Warm Springs Allotment.

<u>Year</u>	<u>Source</u>	<u>Number of animals</u>	<u>AUMs yearlong *</u>
90/91	7/91 census	703	8436
89/90	Estimate	618	7416
88/89	3/89 census	532	6384
87/88	Estimate	551	6612
86/87	6/87 census	569	6828

* Yearlong AUMs do not accurately reflect totals for use areas. This is due to seasonal movements of horses, some of which summer outside allotment boundaries. Seasonal movements are taken into account in the stocking rate calculations in following sections.

Wild horses generally summer in the higher country of Buck and Bald Mountains, moving into both Newark and Long Valleys in the winter months. Newark Valley also has a number of horses using this area year-round. Long Valley Wash serves as winter range for horses using the Maverick Range and north Butte Range, and has been exclusively horse use during the analysis years. Horses have not been counted/sighted in the Ruby Valley portion of this allotment on any recurring basis. Average summer use is considered to be 7 months, 4/16 to 11/15, and winter use as 5 months, 11/16 to 4/15. While these dates are not exact, they are close approximations based on field observations, and allow some consideration for seasonal movements of horses between use areas. Wild horse use areas are shown in Map 5.

Wild horses also regularly use portions of the Diamond Range in a designated horse-free area, censused in 1987, 1989, and 1991 (not included in Tables 2 and 3). Twenty-two horses were counted on the Warm Springs Allotment portion of this horse-free area on 6/10/87, no horses on 8/11/89, and 35 horses on 7/12/91. Based on use mapping data, wild horses make substantial yearlong use in this area.

Table 3. Buck & Bald HMA horse use by horse use area (# animals).

<u>Date</u>	<u>Newark</u>	<u>W.Buck</u>	<u>E.Buck/ Long Valley</u>	<u>L.V. Wash</u>	<u>Bald</u>	<u>Total</u>
7/91	66	60	267	96	214	703
90 est.	57	40	240	122	159	618
3/89	48	20	212	149	103	532
88 est.	30	24	230	122	145	551
6/87	12	28	248	94	187	569
12/85	0	4	436	87	71	598

C. Wildlife Use

The RPS objective for this allotment is to provide forage and habitat for 10159 AUMs of deer use and 125 AUMs for antelope. The Diamond Mountains and Buck and Bald Mountains provide important habitat for resident deer, and the Buck and Bald use area is an important migration route and winter range for the Ruby Mountain deer herd (Management Area 10). Weather determines the extent and significance of yearly deer migrations. The east slope of the Diamond Range provides important year-long habitat for resident mule deer in Management Area (MA) 14. A limited amount of migration from MA 10 occurs, but has not been adequately documented or quantified.

In a letter dated December 11, 1991, Region II of the Nevada Department of Wildlife (NDOW) declined a request for allotment-specific actual use for big game animals. Therefore, no estimates of forage utilization for these animals are possible.

Newark Valley is also being considered by NDOW for antelope augmentation, with a total population goal of 200-250 animals set in the Buck and Bald Habitat Management Plan (HMP). Long Valley is being considered for reintroduction. Pronghorn antelope are currently present in small numbers in both Newark and Ruby Valleys.

Significant sage grouse concentrations also exist on Warm Springs, including five identified leks and several crucial brooding and winter areas (Map 6). Chukars exist in limited numbers in the Diamond Range and Buck Mountain, and blue grouse have been documented on Buck Mountain as well.

Bald eagles (endangered) winter within the allotment, primarily in Newark Valley. Peregrine falcons (endangered) have been sighted at various times of year, and two sites in the Diamond Mountains have been selected by NDOW for future nest (hack) sites.

Category 2 species are those being considered by the U.S. Fish and Wildlife Service for threatened or endangered status. These species include the ferruginous hawk, the Newark Valley tui chub, the western snowy plover, and the white-faced ibis. High nesting densities of ferruginous hawks occur within the allotment, with concentrations along the benches of Newark and Long Valleys. These concentrations occur in what is considered to be ideal nesting habitat - southeast exposure, juniper stringers, within 2 miles of winterfat flats. The Newark Valley tui chub has also been a state listed sensitive species since 1981. The chub has been identified in two springs on the allotment, both in Newark Valley (T. 22 N., R. 56 E., sec. 21 & 22). Habitat conditions for this fish are considered stable, but specific requirements are largely unknown. Western snowy plovers and white-faced ibis are believed to nest on private valley bottom land within the allotment.

III. ALLOTMENT PROFILE

A. Description

The Warm Springs Allotment (0606) is a category "I" allotment, involving 318,740 federal acres, 325,740 total acres, situated in the northwest corner of White Pine County. The allotment includes portions of Long Valley, Newark Valley, Buck and Bald Mountains, and small sections of the Diamond Mountains and Ruby Valley. The allotment contains a wide variety of vegetation types. Valley bottoms are mostly winterfat/bottlebrush squirreltail, interspersed with greasewood, rabbitbrush, and black sage associations. Mid-elevations include pinyon pine-juniper-big sage-bitterbrush in varying proportions, interspersed with areas of black sage. Mountain brush communities, involving a mixture of serviceberry, snowberry, big sage, bitterbrush, and mountain mahogany, occur at higher elevations, along with low sage associations and mesic pockets of willow, aspen, and chokecherry.

B. Allotment Specific Objectives

1. Land Use Plan (RMP) Objectives

- (a) Rangeland Management - "All vegetation will be managed for those successional stages which would best meet the objective of this proposed plan." (Egan Resource Area Record of Decision, p. 3)

- (b) Wild Horses - "Wild horses will be managed at a total of 700 animals within the Buck and Bald HMA " (Egan ROD, p. 6)*
- "Future adjustments in wild horse numbers will be based on data provided through the rangeland monitoring program." (Egan ROD, p. 8)
- * - The 700 horses yearlong identified in the ROD is no longer a valid AML. The Interior Board of Land Appeals June 7, 1989 decision (IBLA 88-591, 88-638, 88-648, 88-679) ruled in part: "an AML established purely for administrative reasons because it was the level of wild horse use at a particular point in time cannot be justified under the statute" (Dahl vs. Clark, Supra at 595). The IBLA further ruled that AML must be established through monitoring "in terms of the optimum number which results in a thriving natural ecological balance and avoids deterioration of the range."
- (c) Wildlife - "Habitat will be managed for 'reasonable numbers' of wildlife species as determined by NDOW." (Egan ROD, p. 6)
- "Forage will be provided for 'reasonable numbers' of big game as determined by NDOW" (Egan ROD, p. 8)
- (d) Watershed - "Establish utilization limits to maintain watershed cover, plant vigor and soil fertility in consideration of plant phenology, physiology, terrain, water availability, wildlife needs, grazing system and aesthetic values." (Egan ROD, p. 44)

2. Rangeland Program Summary Objectives

- (a) "Provide for up to 10261 AUMs of livestock use."
- (b) "Maintain Julian and Bald Mtn. Seedings in good or better condition."
- (c) "Improve the condition of winterfat/nuttal saltbush dominated vegetation types on the Long Valley winter range."
- (d) "Maintain or improve ecological condition of native range with utilization levels not to exceed Nevada Rangeland Monitoring Handbook (NRMH) recommended allowable use levels." Allowable use levels for winterfat and perennial grass species is 50%.

- (e) "Improve mule deer yearlong habitat to good or better condition by not exceeding utilization levels on native species as recommended in the NRMH. Manage rangeland habitat and forage condition to support 10159 AUMs for mule deer."
- (f) "Manage rangeland habitat and forage condition to support 125 AUMs for pronghorn antelope, with potential augmentation/reintroduction."
- (g) "Improve and maintain habitat condition of meadows and riparian areas from poor to good or better condition for mule deer and upland game. Utilization levels will not exceed 55% on perennial grasses and 45% on shrubs along stream riparian areas and mesic meadows."
- (h) "Limit utilization of browse species in crucial deer winter range to a maximum of 45% of current annual growth."
- (i) "Protect sage grouse breeding complexes by maintaining the big sagebrush sites within 2 miles of active strutting grounds for mid to late seral stage with a minimum of 30% shrub composition by weight."
- (j) "Protect ferruginous hawk nest sites by limiting utilization to 50% on winterfat flats within 2 miles of nest sites."
- (k) "Improve 3.0 miles of stream riparian habitat condition from poor/fair to good or better." (Deadman and Old Deadman creeks)
- (l) "Manage rangeland habitat to support wild horses as part of the Buck and Bald HMA by not exceeding allowable use levels on native species as recommended in the NRMH. Initially, provide for 280 horses in the Buck and Bald HMA (3359 AUMs)." *

* - The 280 horses yearlong identified in the RPS is no longer a valid AML. The Interior Board of Land Appeals June 7, 1989 decision (IBLA 88-591, 88-638, 88-648, 88-679) ruled in part: "an AML established purely for administrative reasons because it was the level of wild horse use at a particular point in time cannot be justified under the statute" (Dahl vs. Clark, Supra at 595). The IBLA further ruled that AML must be established through monitoring "in terms of the optimum number which results in a thriving natural ecological balance and avoids deterioration of the range."

3. Buck, Bald, Maverick, and Diamond Mountains Habitat Management Plan (HMP) - specific objectives which apply to Warm Springs, paraphrased from the HMP.

- (a) Limit utilization of bitterbrush and other browse species to 25% of current year's growth by September 30, to ensure adequate forage availability for wintering mule deer, at the following key locations:

Overland Pass	T 25 N, R 57 E
Big Bald Mtn West	T 24 N, R 57 E
Water Canyon/Bald Mtn.	T 24 N, R 57 E
Mahoney Canyon	T 24 N, R 58 E
Cherry Springs	T 24 N, R 58 E
Mooney Basin	T 23 N, R 58 E
Buck Pass	T 22 N, R 57 E
Orchard Canyon	T 22 N, R 56 E
Little Willow Springs	T 21 N, R 57 E
Willow Springs	T 21 N, R 57 E

- (b) Limit utilization levels to 55% of current annual growth on perennial grasses and grasslike species along stream riparian areas and mesic meadows by November 1 at the following key locations:

Cottonwood Cyn/Buck Mtn.	T 22 N, R 57 E, sec.30
Handy Spring	T 22 N, R 55 E, sec. 9
Water Canyon/Bald Mtn.	T 24 N, R 57 E, sec.20
Mud Spring	T 22 N, R 57 E, sec.32
Orchard Canyon	T 22 N, R 56 E, sec.36
Little Willow Spring	T 21 N, R 56 E, sec. 6
Old Deadman Creek	T 21 N, R 56 E, sec. 9
Deadman Creek	T 21 N, R 56 E, sec.16

- (c) Limit utilization to 45% of current year's growth on riparian shrub species, and 25% on riparian tree species by November 1 at the following locations:

Cottonwood Cyn/Buck Mtn.	T 22 N, R 57 E, sec.30
Orchard Canyon	T 22 N, R 56 E, sec.36
West Buck Mtn.	T 21 N, R 56 E, sec.27

- (d) On Deadman Creek, (rated poor in 1989) limit utilization on streamside vegetation to 0-20%.

- (e) Limit utilization of winterfat to 55% at the following locations, to protect ferruginous hawk prey-base habitat:

McBride's Sheep Well	T 21 N, R 58 E, sec.25
Shallow Well	T 21 N, R 57 E, sec. 8

- (f) Manage the following key sage grouse areas for late mid seral stages, with at least 25% sagebrush cover.

Mouth of Bourne Canyon
Long Valley Slough

T 23 N, R 56 E, sec.10
T 23 N, R 58 E, sec.26

5. Key Species Identification

Key upland forage plants for cattle, sheep, and horses for this allotment are as follows:

Seedings - Crested wheatgrass (Agropyron cristatum) - AGCR
Native - Bitterbrush (Purshia tridentata) - PUTR (not a key species for wild horses)
Sickle Saltbush (Atriplex falcata) - ATFA
Winterfat (Eurotia lanata) - EULA
Indian ricegrass (Oryzopsis hymenoides) - ORHY
Bottlebrush squirreltail (Sitanion hystrix) - SIHY
Needle and Thread (Stipa comata) - STCO

These species were chosen as key species because they provide the bulk of the available forage and are a significant component on the range sites under consideration.

IV. MANAGEMENT EVALUATION

A. Purpose

The purpose of this evaluation is to assess whether current management practices are meeting the multiple use objectives for the allotment and to determine the appropriate stocking level for the various pastures, for livestock, wildlife, and wild horses.

B. Summary of Studies Data

Utilization patterns were mapped in 1987, 1988, 1989, 1990, and 1991, and use transects have been completed on various portions of the allotment since 1981. Actual use has been collected since 1983. There are 27 key areas identified for this allotment, two on the seedings and 25 on native, with frequency trend and ecological status (condition) studies established at 17 of the native key areas. Map 7 shows the locations of identified key areas. Twelve of these trend transects have been read more than once, allowing an indication of trend. Phototrend studies are located in the allotment, but problems with plot locations and previous readings only allow for gross generalizations based on photos. There are eleven big game key areas/monitoring sites located within this allotment, eight of which have had multiple frequency readings to provide trend information. Ecological status (condition) was completed for the majority of the allotment in 1986, based on site descriptions current at the time.

Data will be analyzed and proper stocking levels calculated on a use area/pasture basis. Proper stocking levels will be based on monitoring information and calculated using the following formula:

$$\frac{\text{Actual Use (AUMs)}}{\text{Corrected Utilization (\%)*}} = \frac{\text{Proper Stocking Level (AUMs)}}{\text{Desired Utilization (\%)**}}$$

* Value from use pattern mapping, adjusted using yield index
**Value from Nevada Rangeland Monitoring Handbook - modified depending on objectives and season-of-use.

In areas involving combined use by livestock and wild horses, this calculated proper stocking rate will be apportioned to the various users based on percentage of demand. Demand AUMs for a given area will be considered the total of livestock preference adjudicated to that area, plus existing wild horse use, based on the latest census.

1. Precipitation Data

Data from the National Oceanic and Atmospheric Administration weather station located at Ely, Nevada is being used for this evaluation. Data from local rain gauges shows similar trends in monthly/annual rainfall patterns. Precipitation data will be used to calculate a yield index for each year (Sneva et al. 1983). The yield index will be used to adjust the utilization levels for above or below normal precipitation (compared to long-term average). In calculating the yield index, the first step is to calculate the crop yield (effective precipitation). For the Intermountain Big Sagebrush Region, this includes precipitation falling from September through June. The crop yield is then divided by the normal crop yield (long term average) to determine the precipitation index for each year. The yield index is then calculated using the linear regression equation $Y = -23 + 1.23x$, where Y is the yield index and x is the precipitation index. Table 4 shows the yield indices for Ely for the analysis years (data for the Ruby Valley Station was incomplete).

Table 4. Yield Indices, Ely station

<u>Year</u>	<u>Crop Yield</u>	<u>Precip. Index</u>	<u>Yield Index</u>
1986	9.76	126%	132%
1987	8.02	103%	104%
1988	8.17	105%	106%
1989	6.44	83%	79%
1990	7.12	92%	90%
1991	7.75	100%	100%

2. Riparian Data

Much of the riparian and aspen acreage initially identified in the 1982 survey was misidentified or overestimated, using aerial infrared photographs. Subsequent field checks have greatly reduced the amount and extent of riparian vegetation for this allotment (see memorandum dated January 6, 1992 in monitoring/evaluation files). In addition, much of the actual aspen acreage in the Diamond Mountains is inaccessible to livestock due to extremely steep topography, and will not be considered in this evaluation. There are, however, several important riparian complexes which need to be considered. The following locations were considered key riparian sites, and monitored/evaluated accordingly:

1. Handy Spring

This is a small spring located in the Diamond Mountains at T 22 N, R 55 E, sec. 9, NE. The springhead itself is developed, with storage and a stockwatering trough, with very little vegetation. Overflow from the trough continues down the drainage for 1/4 to 1/2 mile, and supports riparian grasses, elderberry, and rose. No condition ratings have been done on this limited riparian zone. Due to steep terrain and proximity to the stockwatering source, utilization of this bottom by horses and cattle has generally been severe.

2. Deadman Creek

This is a perennial creek which flows through Buck Station on the west flank of Buck Mountain, from a spring source at T 22 N, R 56 E, sec. 10, NW. The public portion of this creek (1/2 mile) is steep (22% gradient), rocky, and well-confined. Stream habitat survey ratings were done in 1980 and 1989, with overall ratings of 43% and 32% habitat condition respectively (poor). Unfortunately, this rating is for fisheries habitat, and includes 0% ratings for pool quality and pool-riffle ratio. This stream does not contain fish of any species, and due to steep gradient and complete lack of pools, has low potential as fish habitat. Off-bank riparian condition is probably a more valid indicator of the health of this system. Off-bank condition, done in 1989, rated this stream fair in the lower portion, and good in the upper (springhead) portion, and noted trampling and extremely heavy cattle and horse utilization as potential problems.

3. Old Deadman Creek

This is a small creek with multiple sources and variable flow. In dry years the last mile of stream experiences intermittent flow. Spring sources for this stream are located at T 21 N, R 56 E, sec. 22, NE. The stream course is approximately 2.5 miles long, entirely on public land. Stream habitat condition was completed in 1981, with an overall rating of 48% (fair). As with Deadman Creek, poor pool quality and pool-riffle ratio limit the rating even though this stream has no fisheries potential, due to steep gradient, complete lack of pools, and intermittent flow in the lower reach. Off-bank condition ratings, done in 1989, showed the lower portion in good (60%) condition, and the upper portions around the springheads in excellent (85%). This stream supports a good sized, varied riparian zone, including fairly dense willow and rose thickets. Utilization has been heavy on portions of this drainage.

4. Mud Spring

This spring is located near Buck Pass at T 22 N, R 57 E, sec. 32, NE. It consists of a developed springhead with water piped to a nearby trough, and a 5 acre riparian protection fence, which encloses the main springhead, an additional small seep, and a high quality open meadow. The meadow was rated in excellent condition (85%) in 1991, using off-bank condition methods. Utilization in the area has been traditionally heavy, due to the water source, but as long as fence integrity is maintained, the riparian community is protected and in proper condition.

5. Cottonwood Spring

Cottonwood spring/canyon is located on the north end of Buck Mountain at T 22 N, R 57 E, sec. 30. It consists of several springheads and small aspen patches connected by a small perennial stream that runs up to a mile from the upper springheads. One of the springhead/aspen complexes is on private land, but the majority is public. Off-bank riparian condition was rated at 45% (fair) in 1991. Specific measurements of aspen stands, such as age/size classes, number of stems, etc. have not been taken, but utilization in this bottom has been heavy, with aspen regeneration limited by cattle use. Cattle drift into the canyon from the head of the drainage on Buck Mountain, then remain in the bottom for extended periods in mid to late summer.

6. Moore Springs

The Moore Spring complex is one of several sources for Orchard Canyon creek, and is located at T 22 N, R 56 E, sec. 36. These springheads and their outflows support riparian grasses and forbs. Utilization by cattle and horses has been severe. Springhead protection fences are proposed for these sources.

7. Orchard Canyon

Orchard Canyon is a significant stream riparian complex, extending approximately 2.5 miles below Moore Springs, at T 22 N, R 56 E, sections 23, 24, 25, 26, 35, and 36, on the north end of Buck Mountain. Two 40 acre private parcels are included along its length, but the majority is public. Portions of the creek and adjacent meadows were enclosed in four riparian protection fences in 1980, but problems with maintenance, initial design flaws, and vandalism have made the largest enclosure non-functional. This has been redesigned as a larger (approx. 80 acre) riparian pasture, with construction pending. Cattle drift into Orchard Canyon from the top of Buck Mountain and concentrate in the riparian bottom, particularly in the late summer hot period. Cattle are also trailed up the canyon in seasonal movements to and from Buck Mountain. Utilization season-long is severe, and includes trampling, hummocking, and hedging of woody riparian species. Specific condition ratings have not been completed, but the area does support a variety of riparian grasses and forbs, with patches of willow, rose, and aspen.

8. Water Canyon

Water Canyon is a small spring and stream riparian system on west Bald Mountain, at T 24 N, R 57 E, sec 20, NE. A recently completed 3 acre enclosure protects the springhead and meadow, but in 1991 was breached by horses and cattle, and a trespass spring development by the permittee disturbed large portions of this area. Within this enclosure, the meadow area off-bank condition was rated at 65% (good) in 1991. The short stretch of stream outside the enclosure flows into a stockwatering reservoir, and other than clumps of large chokecherry, is basically devoid of riparian vegetation. Utilization outside the enclosure has been severe.

9. Mill Spring

This is a small spring on Bald Mountain at T 24 N, R 57 E, sec. 17, SW. Riparian vegetation is confined to clumps of rose at the springhead and a small meadow fed by the trough overflow. Condition was rated at 17 % (poor) in 1991, due to a lack of surface water, limited riparian vegetation, and severe use/trampling by horses and cattle.

10. Newark Valley Tui Chub springs (unnamed)

T 22 N, R 56 E, sec. 28, NW

This spring is a small valley bottom springhole and saline meadow in Newark Valley which contains Newark Valley Tui Chub (*Gila bicolor newarkensis*). This endemic chub is a category 2 candidate species for federal threatened or endangered status, and is state-listed as sensitive. Utilization and trampling by wild horses and cattle has been heavy to severe.

T 22 N, R 56 E, sec. 21, NW

This spring is similar to the above location, except that chub have not been identified at this site. It does offer potential for introduction of Tui chub, in order to expand their habitat. Most of the area is a big sage/greasewood/rabbitbrush bottom, with a small spring and meadow complex. The spring and meadow are fenced, offering better control of animal access. Utilization has been heavy to severe, with trampling at the springhead evident.

An additional spring at T 22 N, R 56 E, sec. 21, SW contains Tui chub, but is located on private land.

Cherry Spring, Bourne Tunnel Spring, and the Cracker Johnson Springs were initially considered for monitoring, but were dropped as key sites due to a lack of surface moisture and riparian potential.

3. Use Pattern Mapping

Use patterns were mapped for the majority of the allotment in April of 1986, 1987, 1988, 1989, 1990, and 1991, for winter use. Results by use class and percent of total usable acres mapped are shown in Table 5.

Table 5. Use pattern mapping summary - acres and (percent of usable acres) by use class for winter use areas (Long Valley, L.V. Wash) in Warm Springs Allotment.

<u>Year</u>	<u>Light (21 - 40%)</u>	<u>Moderate (41 - 60%)</u>	<u>Heavy (61 - 80%)</u>	<u>Severe (>81%)</u>
1991	8274(07)	11355(10)	49080(43)	46476(40)
1990	17271(18)	28111(28)	40614(40)	14385(14)
1989	16287(22)	21819(30)	26794(37)	8110(11)
1988	16510(17)	12885(13)	39203(41)	28134(29)
1987	8571(11)	20077(25)	39407(50)	11180(14)

As presented in this table, usable acres do not include those areas mapped as slight. In all years, areas that rated slight were either unavailable to livestock and horses (steep slopes &/or snow covered) or had minimal forage availability (Pinyon-juniper or big sage with little understory). Key winterfat vegetation types made up the majority of the moderate, heavy, and severe use classes every year.

Table 6. Use pattern mapping summary - acres and (percent of usable acres) by use class for summer use areas in Warm Springs Allotment.

<u>Year</u>	<u>Light</u> <u>(21 - 40%)</u>	<u>Moderate</u> <u>(41 - 60%)</u>	<u>Heavy</u> <u>(61 - 80%)</u>	<u>Severe</u> <u>(>81%)</u>
1991	39997(43)	15618(17)	29647(32)	7562(08)
1990	17034(21)	21033(26)	29740(37)	12739(16)
1989	32201(53)	14513(24)	12661(21)	934(02)
1988	29667(47)	14052(22)	16651(27)	2673(04)

As presented in this table, usable acres do not include those areas mapped as slight. In all years, areas that rated slight were either unavailable to livestock and horses (steep slopes &/or rough terrain) or had minimal forage availability (Pinyon-juniper or big sage with little understory). Key vegetation types, primarily mountain brush and mixed sagebrush communities, made up the majority of the moderate, heavy, and severe use classes every year.

4. Ecological status

Ecological status (condition) was mapped for the allotment in 1986, using range site descriptions current for that time. Range site descriptions for this Major Land Use Area (MLRA 28B) were updated in 1988, which may affect some of the condition classifications. However, until this study is revised, it represents the most current information and is usable in its current form. Ecological status estimates the state of succession at a given site, by measuring species composition and comparing it to composition of the Potential Natural Community (PNC) or climax for that site. This is estimated as a percentage of PNC, and classifications include Early Seral (0-25% PNC), Mid Seral (26-50% PNC), Late Seral (51-75% PNC), and Potential Natural Community (76-100%). Table 7 presents ecological status acreage for this allotment.

Table 7. Ecological status, acres and (percent of acres mapped) for Warm Springs allotment, 1986.

<u>Early Seral</u>	<u>Mid Seral</u>	<u>Late Seral</u>	<u>PNC</u>	<u>Rock Outcrop</u> <u>& Unsurveyed</u>
14001(5)	186,503(57)	93676(29)	2781(1)	28779(8)

Ecological status has also been estimated for 14 of 29 native key areas. Results are presented in Table 8, below.

Table 8. Ecological Status (condition) for native key areas, Warm Springs allotment.

<u>Key Area</u>	<u>Range Site</u>	<u>Veg Type</u>	<u>Ecol Status</u>
<u>Long Valley</u>			
WS-3	28BY013NV	EULA/SIHY	26% (Mid-seral)
WS-4	28BY013NV	EULA/SIHY	38% (Mid-seral)
WS-5	28BY047NV	ATFA	73% (Late-seral)
WS-23	28BY013NV	EULA/SIHY	59% (Late-seral)
<u>Bald Mountain</u>			
WS-11	28BY034NV	ARAR/POSE	41% (Mid-seral)
WS-12	28BY094NV	ARTR/AGSP	45% (Mid-seral)
WS-15	28BY011NV	ARNO/POSE	39% (Mid-seral)
WS-16	28BY010NV	ARTR/ORHY	34% (Mid-seral)
WS-17	28BY016NV	ARNO/SIHY	41% (Mid-seral)
<u>Buck Mountain</u>			
WS-20	28BY037NV	ARAR/POSE	61% (Late-seral)
WS-21	28BY080NV	ARTR/ORHY	46% (Mid-seral)
WS-25	28BY019NV	ATCO/ARSP	56% (Late-seral)
<u>Mooney Basin</u>			
WS-13	28BY007NV	ARTR/Stipa	35% (Mid-seral)
WS-14	28BY010NV	ARTR/Stipa	41% (Mid-seral)
<u>Diamond Mountain</u>			
*	28BY010NV	ARTR/POSE	30% (Mid-seral)

* No established key area in the Diamond Mountain pasture. Specific composition information from the ecological status determinations indicate problems with several key areas. WS-3 and WS-4 in Long Valley show very low percentages of winterfat, at 13% and 22% composition respectively. Key areas on Buck and Bald (WS-12,13,14,15,16,17,20) in big sage and black sage types, show less than 10% perennial grass composition, in many cases 1-3%. This results in very poor forage condition, even though these sites rate as mid-seral. The same is true of the condition rating for the Diamond Mountain bench, noting very poor forage production (<3% grass) and invasion by green rabbitbrush.

Forage condition (% crested wheatgrass) was also estimated on the seedlings. In the West Bald pasture in particular, it was noted that crested wheatgrass plants showed extremely poor vigor, and that sagebrush invasion was well advanced, with numerous sagebrush seedlings. Severe use has been noted most years.

5. Trend

Frequency trend transects have been established on the majority of native key areas. Species frequency has been measured twice or more on many of these transects, providing an indication of trend in these areas. Statistical significance of changes was determined by comparison of confidence intervals at the .95 confidence level. Table 9 presents these results.

Table 9. Frequency Trend for Key Areas on Warm Springs Allotment.

Range Studies:

<u>Key Area</u>	<u>Years Read</u>	<u>Significant Changes</u>	<u>Indicated Trend</u>
WS-3	87/91	-----	Static
WS-4	87/91	-----	Static
WS-5	87/91	-----	Static
WS-11	84/91	-----	Static
WS-12	84/91	less POSE, AGSP	Down
WS-13	84/91	less POSE, AGSP	Down
WS-14	84/91	less POSE, ORHY, AGSM	Down
WS-15	84/91	-----	Static
WS-16	84/91	-----	Static
WS-17	84/91	-----	Static
WS-20	84/91	less SIHY, forbs	Down
WS-21	84/91	less PONE, ORHY	Down

Wildlife Studies:

<u>Key Area</u>	<u>Years Read</u>	<u>Significant Changes</u>	<u>Indicated Trend</u>
BB-1	82/86/89	less POSE, forbs	Down
BB-2	82/86/90	less Carex, forbs	Down
BB-3	83/86	-----	Static
BB-5	87/91	less grass	Down
BB-7	84/91	-----	Static
BB-8	83/86/89	-----	Static
BB-9	86/89	-----	Static
BB-12	82/90	-----	Static

6. Utilization, Actual Use, and Stocking Rate Calculations by Use Area.

Proper Stocking Level is calculated using the following formula:

$$\frac{\text{Actual Use (AUMs)}}{\text{Corrected Utilization (\%)}} = \frac{\text{Proper Stocking Level (AUMs)}}{\text{Desired Utilization (\%)}}$$

The Desired Utilization (Proper Use Factor) used in these calculations varies by use area, due to objectives for vegetation types and current conditions. Based on current literature, 50% utilization is used as allowable use for winterfat and native perennial grasses, in those areas where objectives are to maintain current condition and prevent deterioration. This would include Newark Valley, Ruby Valley, and Long Valley Wash use areas. Areas which show low ecological condition, extremely low forage production and/or forage plant composition, and downward trend for key areas, require use of a lower proper use factor, and subsequently lower stocking level, in order to improve conditions. In the case of Buck/Bald and Long Valley use areas, 35% was used, based on a review of current literature, in order to increase forage plant vigor, and start the slow recovery process.

The raw utilization figures used in these calculations are either the mid-point of the highest significant use zone, or the average of actual transect readings within the highest significant use zone.

a. Buck and Bald Use Area
Actual use breakdown (AUMs)

<u>Year</u>	<u>Cattle</u>	<u>Horses</u>	<u>Total AUMs</u>
1991	2139	3787	5926
1990	4391	3073	7464
1989	4019	2345	6364
1988	2220	2793	5013

Utilization/stocking rate calculations:

<u>Year</u>	<u>Raw Utiliz.</u>	<u>Yield Index</u>	<u>Corrected Utilization</u>	<u>Actual Use AUMs</u>	<u>Proper * Stocking Level AUMs</u>
1991	70%	1.00	70%	5926	2963
1990	90%	.90	81%	7464	3225
1989	70%	.79	55%	6364	4050
1988	70%	1.06	74%	5013	2371

*calculated using 35% as desired utilization

The average proper stocking level is 3152 AUMs. Since this is combined use, the stocking level will be proportioned to cattle and horses based on preference demand for livestock and existing use by wild horses as follows:

Cattle preference = 9646 AUMs

Horse use = 541 animals for 7 months = 3787 AUMs

Cattle 9646 AUMs (72%)

Horses 3787 AUMs (28%)

Total 13433 AUMs

Cattle - 72% of demand X 3152 AUMs = 2269 AUMs

Horses - 28% of demand X 3152 AUMs = 883 AUMs

In addition, the Buck and Bald use area contains three fairly distinct wild horse summer use areas, separated on the basis of where these horses move to winter (see Map 5). Distribution of animals within these use areas is based on census mapping and professional judgement by the District Horse Specialists and Range Conservationists. Horses on West Buck winter in Newark Valley (south), and horses on East Buck winter in Long Valley. Horses on Bald Mountain winter at lower elevations on Bald Mountain and in north Newark Valley (within the use area). Total horse AUMs are apportioned based on the proportion of horses in each of the three summer use areas, based on the 1991 census, as follows:

West Buck- 11% X 883 AUMs = 97 AUMs (14 horses for 7 months)
East Buck- 49% X 883 AUMs = 433 AUMs (62 horses for 7 months)
Bald Mtn.- 40% X 883 AUMs = 353 AUMs (29 horses for 12 months*)

*AUMs apportioned to 12 months, since horses on Bald Mountain winter within the use area.

b. Newark Valley Use Area

Actual use breakdown (AUMs)

<u>Year</u>	<u>Cattle</u>	<u>Horses*</u>	<u>Total AUMs</u>
1991	1013	462	1475
1990	306	399	705
1989	0	336	336
1988	651	676	1327

* In 1988, use mapping was done in spring, all other years were fall use maps. Horse use for 1988 includes estimate for year-long residents and winter use (5 mo.) for horses counted on West Buck use area. For fall use maps, horse use was estimated for the yearlong resident animals for seven months.

Utilization/stocking rate calculations:

<u>Year</u>	<u>Raw Utiliz.</u>	<u>Yield Index</u>	<u>Corrected Utilization</u>	<u>Actual Use AUMs</u>	<u>Proper * Stocking Level AUMs</u>
1991	90%	1.00	90%	1475	819
1990	70%	.90	63%	705	560
1989	50%	.79	40%	336	420
1988	70%	1.06	74%	1327	897

*calculated using 50% as desired utilization

The average proper stocking level is 674 AUMs. Since this is combined use, the stocking level will be proportioned to cattle and horses based on preference demand for livestock and existing use by wild horses as follows:

Cattle preference = 1224 AUMs
Horse use = 66 animals for 12 months = 792 AUMs
 60 animals for 5 months = 300 AUMs
 Total = 1092 AUMs

Cattle 1224 AUMs (53%)
Horses 1092 AUMs (47%)
Total 2316 AUMs

Cattle - 53% of demand X 674 AUMs = 357 AUMs
Horses - 47% of demand X 674 AUMs = 317 AUMs

Allowable horse use must include both year-long ~~resident~~ animals and winter use for horses using West Buck. To accomodate the 14 head identified for West Buck in the previous section, 70 AUMs (14 horses/5 months) are reserved for winter use. The remainder (247 AUMs) is allocated to year-long use, providing for an additional 21 horses.

c. Diamond Mountain (Handy Spring) Use Area

Only one year of use mapping is available for the Handy Pasture.

Actual use breakdown (AUMs)

<u>Year</u>	<u>Cattle</u>	<u>Horses</u>	<u>Total AUMs</u>
1991	246	227	473

Utilization/stocking rate calculations:

<u>Year</u>	<u>Raw Utiliz.</u>	<u>Yield Index</u>	<u>Corrected Utilization</u>	<u>Actual Use AUMs</u>	<u>Proper * Stocking Level AUMs</u>
1991	90%	1.00	90%	473	263

*calculated using 50% as desired utilization

The average proper stocking level is 263 AUMs. Livestock preference for this use area is 264 AUMs, and these calculations, based on one year of use mapping, provide confirmation for this stocking level, at least until additional monitoring data is collected and re-evaluated. Since this is a designated horse-free area, all AUMs will be available for cattle use, once horses are removed from the area.

d. Ruby Valley Use Area

Utilization/stocking rate calculations:

<u>Year</u>	<u>Raw Utiliz.</u>	<u>Yield Index</u>	<u>Corrected Utilization</u>	<u>Cattle Actual Use AUMs</u>	<u>Proper * Stocking Level AUMs</u>
1989	70%	.79	55%	1071	974
1988	70%	1.06	74%	1110	750

*calculated using 50% as desired utilization

The average proper stocking level is 862 AUMs, and since this area recieves no wild horse use, all AUMs will be available for cattle use.

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e. Long Valley Use Area
Actual use breakdown (AUMs)

<u>Year</u>	<u>Cattle</u>	<u>Horses</u>	<u>Total AUMs</u>
90/91	8008	1334	9342
89/90	7847	1200	9047
88/89	6327	1059	7386
87/88	6887	1150	8037
86/87	7338	1239	8577

Utilization/stocking rate calculations:

<u>Year</u>	<u>Raw Utiliz.</u>	<u>Yield Index</u>	<u>Corrected Utilization</u>	<u>Actual Use AUMs</u>	<u>Proper * Stocking Level AUMs</u>
90/91	89%	.90	80%	9342	4087
89/90	87%	.79	69%	9047	4589
88/89	86%	1.06	91%	7386	2841
87/88	82%	1.04	85%	8037	3309
86/87	90%	1.32	119%	8577	2523

*calculated using 35% as desired utilization

The average proper stocking level is 3470 AUMs. Since this is combined use, the stocking level will be proportioned to cattle and horses based on preference demand for livestock and existing use by wild horses as follows:

Cattle preference = 10811 AUMs
Horse use = 267 animals for 5 months = 1335 AUMs

Cattle 10811 AUMs (89%)
Horses 1335 AUMs (11%)
Total 12146 AUMs

Cattle- 89% of demand X 3470 AUMs = 3088 AUMs
Horses- 11% of demand X 3470 AUMs = 382 AUMs(76 horses/5 mo.)

f. Long Valley Wash Use Area

Utilization/stocking rate calculations:

<u>Year</u>	<u>Raw Utiliz.</u>	<u>Yield Index</u>	<u>Corrected Utilization</u>	<u>Horse Actual Use AUMs</u>	<u>Proper * Stocking Level AUMs</u>
90/91	90%	.90	81%	480	296
89/90	70%	.79	55%	610	555
88/89	50%	1.06	53%	744	702
87/88	50%	1.04	52%	610	586

*calculated using 50% as desired utilization

The average proper stocking level is 535 AUMs. Long Valley Wash is not currently used to any extent by cattle, due to a lack of functioning waters. However, this area retains livestock preference, based on the availability of water, so the stocking level will be proportioned to cattle and horses based on preference demand for livestock and existing use by wild horses as follows:

Cattle preference = 1210 AUMs
 Horse use = 96 animals for 5 months = 480 AUMs

Cattle 1210 AUMs (72%)
 Horses 480 AUMs (28%)
 Total 1690 AUMs

Cattle - 72% of demand X 535 AUMs = 385 AUMs
 Horses - 28% of demand X 535 AUMs = 150 AUMs (30 horses/5 mo.)

g. Julian and West Bald Seedings

These crested wheatgrass seedings were never adjudicated separately, and are not included in the stocking rate calculation for the Buck and Bald use area. Unfortunately, specific actual use for these seedings has been spotty, and gates have been left open, making a separate stocking rate calculation based on utilization impossible. In order to provide an initial stocking rate for these seedings, production based calculations will be used, based on forage condition ratings done in 1991. The calculations are based on the following assumptions:

1. Average year production on these sites is 600 lb/acre.
2. 1000 lb of usable forage per AUM
3. Proper use factor for crested wheatgrass (AGCR) = 60%
4. Unseeded pinyon-juniper and big sage acreage in Julian Seeding provides negligible forage for cattle.

$$\text{AUMs} = \frac{\text{acres} \times \text{production/acre} [600 \text{ lb}] \times \% \text{AGCR} \times \% \text{proper use} [60\%]}{1000 \text{ lbs forage} / \text{AUM}}$$

<u>Pasture</u>	<u>Acreage</u>	<u>% AGCR</u>	<u>Usable Forage (lb/ac)</u>	<u>AUMs</u>
W. Bald	2550	35%	126 lb/ac	321
Julian	547	75%	270 lb/ac	148
	439	50%	180 lb/ac	<u>79</u>
				227

V. CONCLUSIONS

A. Land Use Plan Objectives

III. B. 1. (a) - Not Met

Rationale: Although the majority of existing vegetation is in acceptable successional stages, long term objectives would not be met if short term use continues to exceed allowable levels. Key areas in both summer and winter ranges show limited production of key forage species. Two main key areas in Long Valley show very low percentages of winterfat, and key areas on Buck and Bald in big sage and black sage types show less than 10% perennial grass composition, in many cases 1-3%. This results in very poor forage condition, even though these sites rate as mid-seral.

In recent years, large areas of the winter use areas have been in heavy or severe use classes. Summer use areas also show heavy to severe use on those areas utilized by horses and cattle. If full preference were used, these areas of overuse would be more extensive. Species frequency determinations on 8 key areas in the Buck and Bald summer use area indicate downward trend.

III. B. 1. (b) - Not Met

Rationale: Allowable use levels have been exceeded on portions of the allotment grazed by wild horses and livestock.

III. B. 1. (c) - Not Met

Rationale: Areas used by mule deer and antelope are in appropriate seral stages, but allowable use levels have been exceeded on portions of available mule deer yearlong, mule deer winter range, and antelope habitat, due to wild horse and cattle use.

III. B. 1. (d) - Not Met

Rationale: Allowable use levels have been exceeded on portions of the allotment.

B. Rangeland Program Summary Objectives

III. B. 2. (b) - Not Met

Rationale: Use on these seedings has been heavy/severe every year.

III. B. 2. (c) - Not Met

Rationale: Key area trend for winterfat areas in Long Valley has been static. There are large areas in early or low-mid seral stages, and utilization has been heavy/severe every year.

III. B. 2. (d) - Not Met

Rationale: Utilization levels have exceeded NRMH allowable use levels on portions of the allotment. In recent years, large portions of both winter and summer use areas have been in heavy or severe use classes. If full preference were used, these areas of overuse would be more extensive.

III. B. 2. (e) - Not Met

Rationale: Allowable use levels on the majority of mule deer habitat have been exceeded on a regular basis.

III. B. 2. (f) - Not Met

Rationale: Allowable use levels on black sage/big sage sites along the Long Valley benches have been exceeded.

III. B. 2. (g) - Not Met

Rationale: Riparian utilization levels have been exceeded on all key riparian sites on a regular basis.

III. B. 2. (h) - Not Met

Rationale: Utilization of browse species, primarily bitterbrush, has exceeded 45% on large portions of the Buck and Bald area on a yearly basis.

III. B. 2. (i) - Met

Rationale: Big sagebrush sites within 2 miles of strutting grounds are being maintained in mid to late seral stages with a minimum of 30% shrub composition.

III. B. 2. (j) - Not Met

Rationale: Allowable use levels on winterfat have been exceeded within 2 miles of the majority of ferruginous hawk nest sites on this allotment, due to horse and cattle use.

III. B. 2. (k) - Not Met

Rationale: The 3.0 miles of stream riparian identified in the RPS, including Deadman and Old Deadman creeks, were rated in fair condition when inventoried, using Habitat Condition classes for streams with fisheries. Off-bank condition was fair to good for Deadman Creek, and good to excellent for Old Deadman in 1989.

III. B. 2. (l) - Not Met

Rationale: Allowable use levels on key forage species have been exceeded on portions of the allotment used by horses.

Habitat Management Plan Objectives

III. B. 3. (a) - Not Met

Rationale: November 1 utilization levels on bitterbrush have exceeded 25% on 8 of 10 key sites on a yearly basis.

III. B. 3. (b) - Not Met

Rationale: Riparian utilization levels have been exceeded on 7 of 8 key riparian sites during every analysis year, due to horse and cattle use. The only location that did meet objectives is enclosed in a riparian protection fence (Mud Spring).

III. B. 3. (c) - Unknown

Rationale: Specific utilization data for woody riparian species at these sites has not been regularly collected.

III. B. 3. (d) - Not Met

Rationale: Riparian utilization levels have been exceeded on Deadman Creek every year that it has been used by cattle during the analysis years.

III. B. 3. (e) - Not Met

Rationale: Allowable utilization levels for winterfat have been exceeded at these two sites every year, due to horse and cattle use.

III. B. 3. (f) - Met

Rationale: The vegetation at both sites has been maintained, with a minimum of 25% sagebrush cover.

VI. TECHNICAL RECOMMENDATIONS

1. Short Term Solutions

A. Resource problems

The primary problem in this allotment is overuse of key species by cattle and wild horses, even though cattle have been run at less than preference in recent years. The key species involved include winterfat, saltbush, and Indian ricegrass for winter ranges, and bitterbrush and all perennial grass species on summer ranges. Riparian utilization is also a problem, with heavy to severe summer-long use by cattle and horses on the majority of the key riparian areas.

B. Causes/Concerns

1. There is an over-obligation of preference, due in part to the 1974 across the board conversion of sheep AUMs to cattle. Most of the allotment is better suited to sheep as far as forage availability. The majority of the vegetation is dominated by shrub species, especially big sage, black sage, greasewood and mountain brush communities. Grass production on many of these areas is extremely limited. The Russell/WHOA agreement of 1985 reduced licensed use to a lower level, but is not binding in the long term. The operator could request full preference at any time.

2. Because of shrub dominance, extensive pinyon-juniper woodlands, and steep terrain, summer range for cattle on this allotment is limited to the small existing seedings and mountain drainage bottoms. This concentrates use on riparian areas and has resulted in overuse and degradation of spring and riparian vegetation in many areas.
3. Also due to shrub dominance and limited grass production on summer grazing areas, cattle utilization of bitterbrush has been severe in many mountain areas. This has resulted in reduced production and vigor, as well as plant death for bitterbrush on crucial mule deer winter/fall range.
4. The allotment has a large year-round wild horse population, which contributes to overgrazing. Combined utilization by cattle and wild horses has been rated as severe in many areas.
5. Overutilization of winterfat areas in Long Valley has resulted in reduced production and a competitive shift toward the grass component, a less desirable vegetative mix for winter cattle and wild horse use.
6. Development of a formal grazing system in Warm Springs is severely limited by several factors. These include:
 - Large size of the allotment (325,740 acres) and almost complete lack of division fencing. This makes pasture rotation type systems impossible without massive expenditures for fencing. Large scale fencing is also undesirable in a wild horse herd area.
 - A lack of appropriate spring forage. Early spring pressure on winterfat in Long Valley and mountain brush communities in the Buck and Bald summer ranges has resulted in locally severe overuse and reduced plant vigor and production. Crested wheatgrass stands up well to spring use and provides forage early, but the two seedings on this allotment (W. Bald Mtn. and Julian Seedings) are too limited to provide more than a small portion of the spring forage demand.
 - A lack of alternative forage sources. Areas rated as slight on use maps, on both winter and summer ranges, are generally not used due to inaccessibility or an almost complete lack of forage (juniper or big sage monocultures). This leaves very little opportunity to shift livestock out of heavily used areas.

C. Solutions (proposed operation)

Due to the limitations mentioned, the only practical solution is to continue seasonal movements from the high country (Diamonds, Buck and Bald) in the spring and summer to valley bottoms (Newark and Long Valleys) in the fall and winter, at reduced stocking levels.

2. Short term solutions by Use Area

a. Buck and Bald Use Area

In order to moderate large areas of overuse, the stocking rate should be set at 2269 AUMs for cattle and 883 AUMs for wild horses, as calculated in section IV.6(a). Therefore, the AML for wild horses for that portion of the Buck and Bald HMA within the Warm Springs Allotment using Buck/Bald summer range would be 105 animals. Livestock use would be limited to spring/summer, with a season of use extending from 4/1 - 8/1. This would necessitate early removal of livestock (8/1) to Newark Valley and private fields at Warm Springs Ranch for fall grazing. This is aimed at alleviating the extreme overuse of bitterbrush by cattle in mule deer winter areas. It has been well documented that cattle will utilize bitterbrush more extensively in the fall, when grasses have cured, (reducing palatability) and forage availability may be reduced.

The earlier removal of livestock should also benefit riparian areas, since cattle congregate in these areas even more during the late summer and early fall, drawn by cooler temperatures and succulent feed. In addition, Moore Springs, Cottonwood Springs, and Orchard Canyon are currently in the planning process for riparian protection fencing projects. A proposed drift fence at the head of Orchard Canyon will also help control cattle movements into the canyon during the summer. On Bald Mountain, maintenance of the Water Canyon enclosure by the permittee should be made a prerequisite for livestock grazing in this area. Throughout this use area, no salt or supplements will be allowed within 1/2 mile of water sources. This should also help improve livestock and wild horse distribution. The reduced stocking rates will also improve forage availability, allowing better animal distribution.

Wild horse gather plans for this area should concentrate on removal of excess animals from problem areas. Use pattern mapping and field observations have indicated several such problem areas on Buck and Bald, including Cracker Johnson Springs/North Bald Mountain, West Buck Mountain, and Willow/Little Willow Springs on Buck Mountain.

b. Newark Valley Use Area

In order to moderate large areas of heavy use, the stocking rate should be set at 357 AUMs for cattle and 317 AUMs for wild horses, as calculated in section IV.6(b). Therefore, the AML for wild horses for that portion of the Buck and Bald HMA within the Warm Springs Allotment using the Newark Valley winter range would be 35 animals. This includes allocation for 14 horses moving down from West Buck to winter in the valley (5 months) and yearlong use for 21 animals. Livestock use would be limited to fall/winter, with a season of use extending from 8/1 to 4/15. Adherence to the spring removal of livestock from this area will be strictly enforced. If cattle are grazed outside this season of use on the private ground associated with Buck Station, fences would have to be repaired/maintained by the permittee to hold the animals on private land.

As far as riparian areas, Deadman and Old Deadman creeks will benefit from primarily dormant season livestock use, and reduced stocking rates for both cattle and horses. In addition, portions of both creeks are currently planned for protection fencing. The Newark Valley Tui Chub spring located at T 22 N, R 56 E, sec. 28 is fenced along with a private parcel around a larger spring also containing chub. This fence should be maintained and gates closed during the summer to prevent horse use during the growing season (alternative waters are available). If trampling continues to be a problem, the public spring could be cross-fenced to control livestock access without interfering with the associated private holdings. Maintenance of these fences would be the responsibility of the permittee. The spring in sec. 21, indicated as a potential reintroduction site for the chub, is also fenced, and should be periodically rested, at least every third year. If Tui chub are reintroduced at this site, close monitoring and control of animal access should be instituted.

c. Diamond Mountain Use Area

In order to moderate large areas of severe use, the stocking rate should be set at 264 AUMs for cattle use only, as calculated in section IV.6(c). Livestock season of use would be spring/summer/fall (4/15 to 10/15). Livestock use should not be made until wild horses are removed. Due to the extremely poor forage production and rabbitbrush invasion noted for most of the lower bench areas in this pasture, a vegetation conversion/seeding should be considered through normal project planning procedures. The drainage below Handy Spring should be included in project planning for riparian protection fencing. Salt will not be allowed within 1/2 mile of water.

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d. Ruby Valley Use Area

In order to moderate large areas of heavy use, the stocking rate should be set at 862 AUMs for cattle use only, as calculated in section IV.6(d). Livestock use would be either spring/summer/fall (4/15 to 10/15), or winter (10/15 to 4/15), but not both in the same growing season.

e. Long Valley Use Area

In order to moderate large areas of overuse on winterfat, the stocking rate should be set at 3088 AUMs for cattle and 382 AUMs for wild horses, as calculated in section IV.6(e). Therefore, the AML for wild horses for that portion of the Buck and Bald HMA within the Warm Springs Allotment using the Long Valley winter range would be 76 animals for 5 months. Livestock use would be limited to the winter use period, with a season of use from 10/15 to 4/15. Adherence to the spring removal of livestock from this area will be strictly enforced. In order to maintain animal distribution, all functioning wells will be pumped on a regular basis throughout the winter, and cattle moved into the valley should be split up and driven to various water sources, rather than pushed over Buck Pass and allowed to drift. Salt and supplements will not be allowed within 1/2 mile of stock waters, nor in winterfat vegetation.

f. Long Valley Wash Use Area

In order to moderate large areas of overuse on winterfat, the stocking rate should be set at 378 AUMs for cattle and 150 AUMs for wild horses, as calculated in section IV.6(f). Therefore, the AML for wild horses for that portion of the Buck and Bald HMA within the Warm Springs Allotment using the Long Valley Wash winter range would be 30 animals for 5 months. These animals summer outside the allotment boundary in the Maverick Range. Livestock use would be limited to the winter use period, with a season of use from 10/15 to 4/15, and would be contingent on the availability of adequate stockwater. Adherence to the spring removal of livestock from this area will be strictly enforced. Wild horse gather plans for this area should concentrate on the north end of Long Valley Wash first, in the vicinity of the Pony Express Trail, since this has been an area of severe horse use.

g. Julian and West Bald seedings

The livestock stocking rates for Julian and West Bald seedings should be set at 227 AUMs and 321 AUMs, respectively, as calculated in section IV.6(g). This is considered an initial stocking rate, to be modified as use is made and specific actual use collected. These seedings will be used and licensed separately, for spring/summer/fall cattle use (4/15-10/31). If spring use is made (prior to 6/1) it will be alternated between the two seedings from year to year.

h. General (all pastures)

Total active preference for livestock on the Warm Springs Allotment for Dan Russell would be a total of 7766 AUMs, licensed separately for the seven use areas as outlined in previous sections. Active preference and wild horse AUMs for each of the use areas is summarized as follows:

<u>Use Area</u>	<u>Cattle AUMs</u>	<u>Horse AUMs</u>
Buck & Bald	2269	883
Newark Valley	357	317
Diamond Mtn	264	0
Ruby Valley	862	0
Long Valley	3088	382
Long V.Wash	378	150
Seedings	548	0
<hr/>		
Total	7766	1732

Overall, this is a 68% reduction in cattle preference.

Wild horse AMLs for the Warm Springs Allotment by use area are summarized as follows:

<u>Wild Horse Use Area</u>	<u># Animals</u>
Newark/W. Buck	35
E. Buck/Long Valley	76
Long Valley Wash	30
Bald Mountain	29
<hr/>	
Total	170*

*The 1732 AUMs identified for horses is less than 170 animals for 12 months, but some of these animals spend time outside allotment boundaries, as indicated in previous discussions.

Gathers within use areas would not remove more horses than required to achieve the allotment-wide AML, and gathers within the allotment would not be allowed to jeopardize the maintenance of AML for the entire Herd Management Area.

3. Long Term Solutions

Regardless of which short term option or combination of options is selected, the following long term solutions should be implemented:

- (a) Continue to monitor to determine if further adjustments to livestock and wild horse use are necessary, including rereading existing studies, yearly and seasonal utilization checks, horse census, and other studies as needed.
- (b) Manage wild horse numbers at a level which will maintain a thriving natural ecological balance as determined through monitoring.
- (c) Remove wild horses from horse-free areas (outside HMA boundaries) in the Diamond Range, in order to effectively limit the animals' distribution to herd areas.
- (d) The seedings should be considered for brush control/seedling maintenance. The Diamond Mountain bench should be considered for vegetation conversion/seedling.
- (e) If short-term solutions do not alleviate overuse of riparian areas, appropriate protection fencing will be implemented.

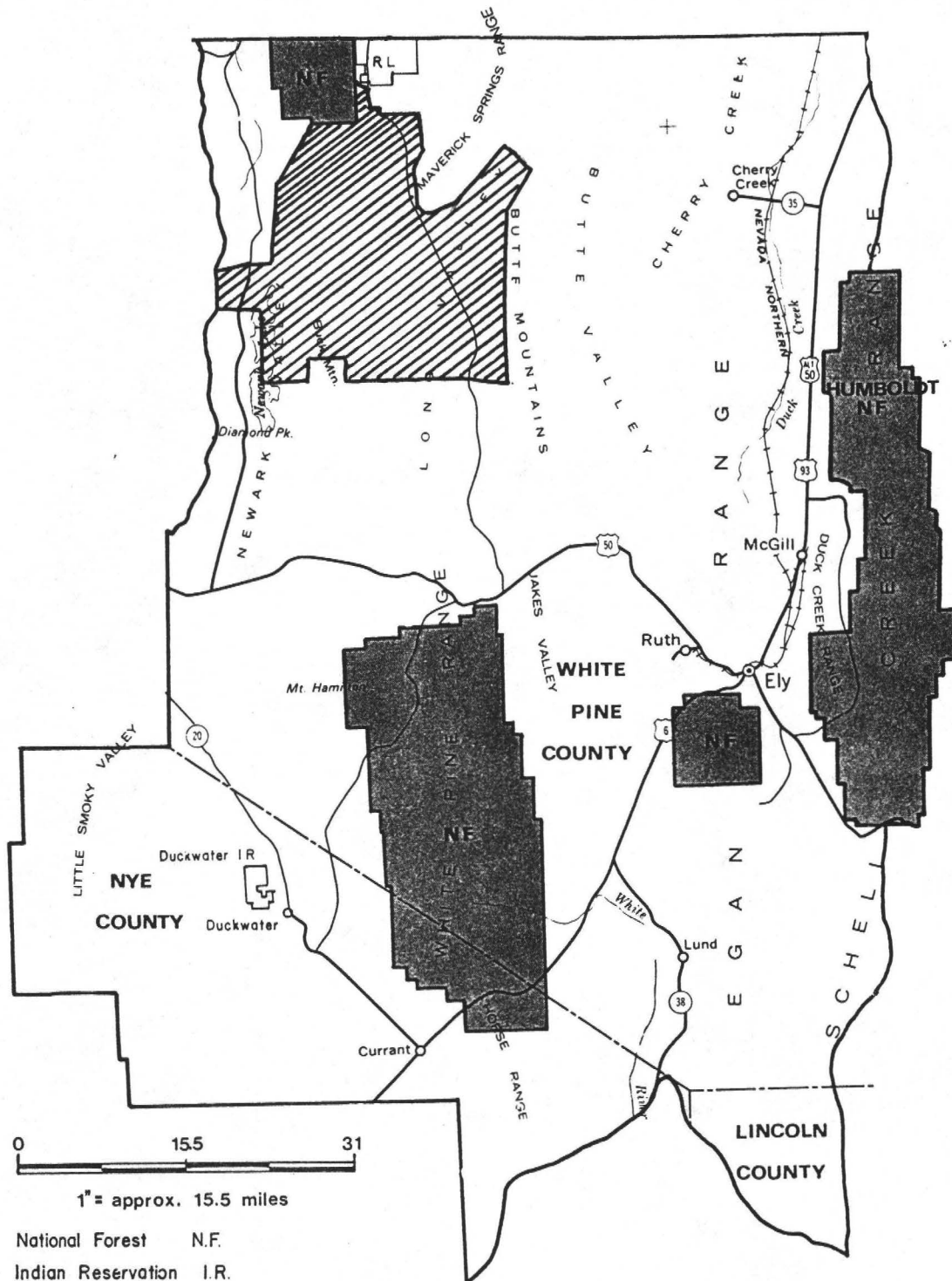
4. Additional Monitoring Data Required

Continue to conduct use pattern mapping, key area utilization, and re-read frequency studies.

Continue to conduct aerial census of wild horses to monitor movements and actual use.

Continue to monitor livestock and wildlife actual use. Require area-specific actual use from the livestock operator.

MAP 1. General Allotment Location

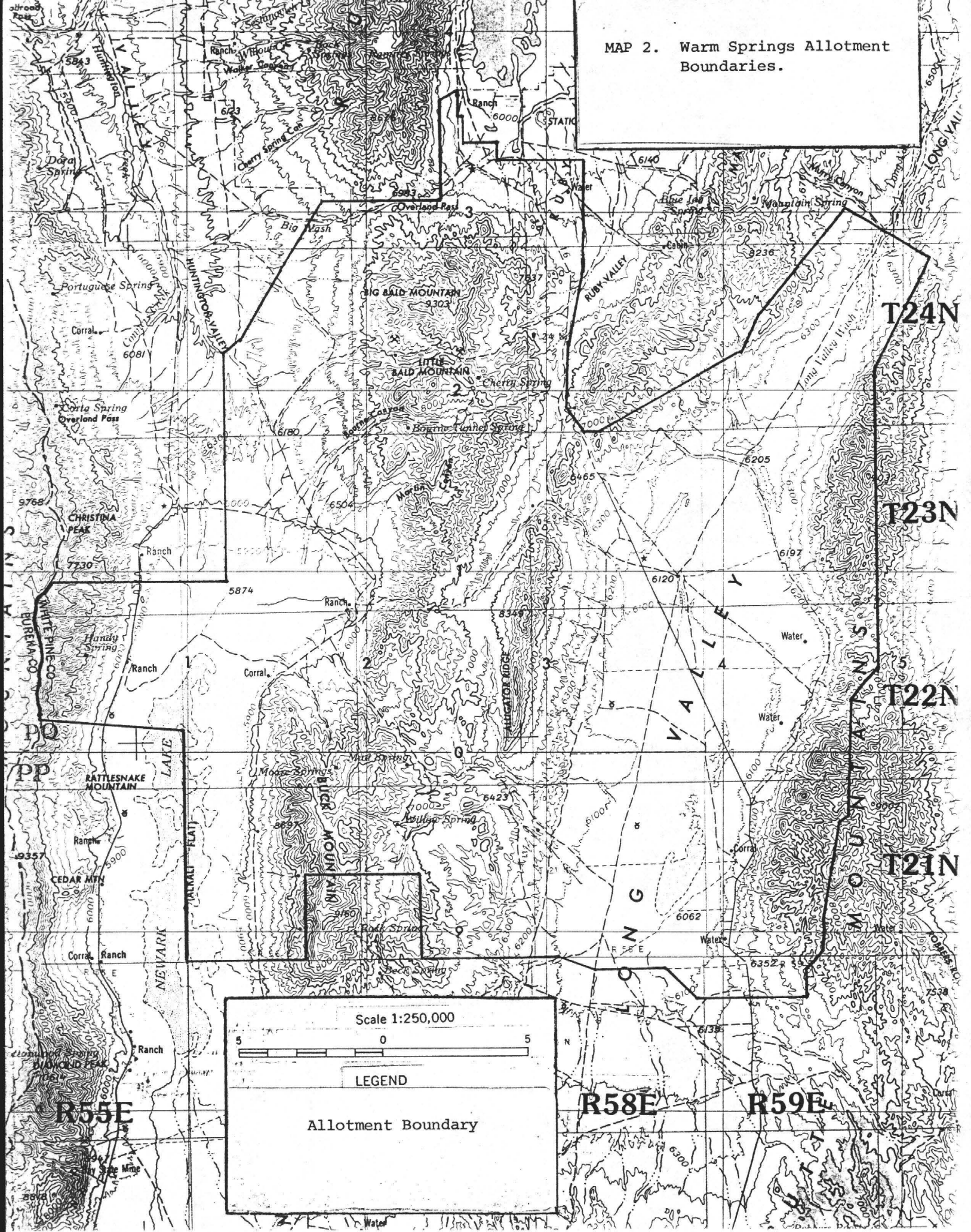


National Forest N.F.
Indian Reservation I.R.
Ruby Lake R.L.

EGAN R.A.
ELY DISTRICT
BUREAU OF LAND MANAGEMENT
U. S. DEPARTMENT OF THE INTERIOR

Warm Springs Allotment

MAP 2. Warm Springs Allotment Boundaries.



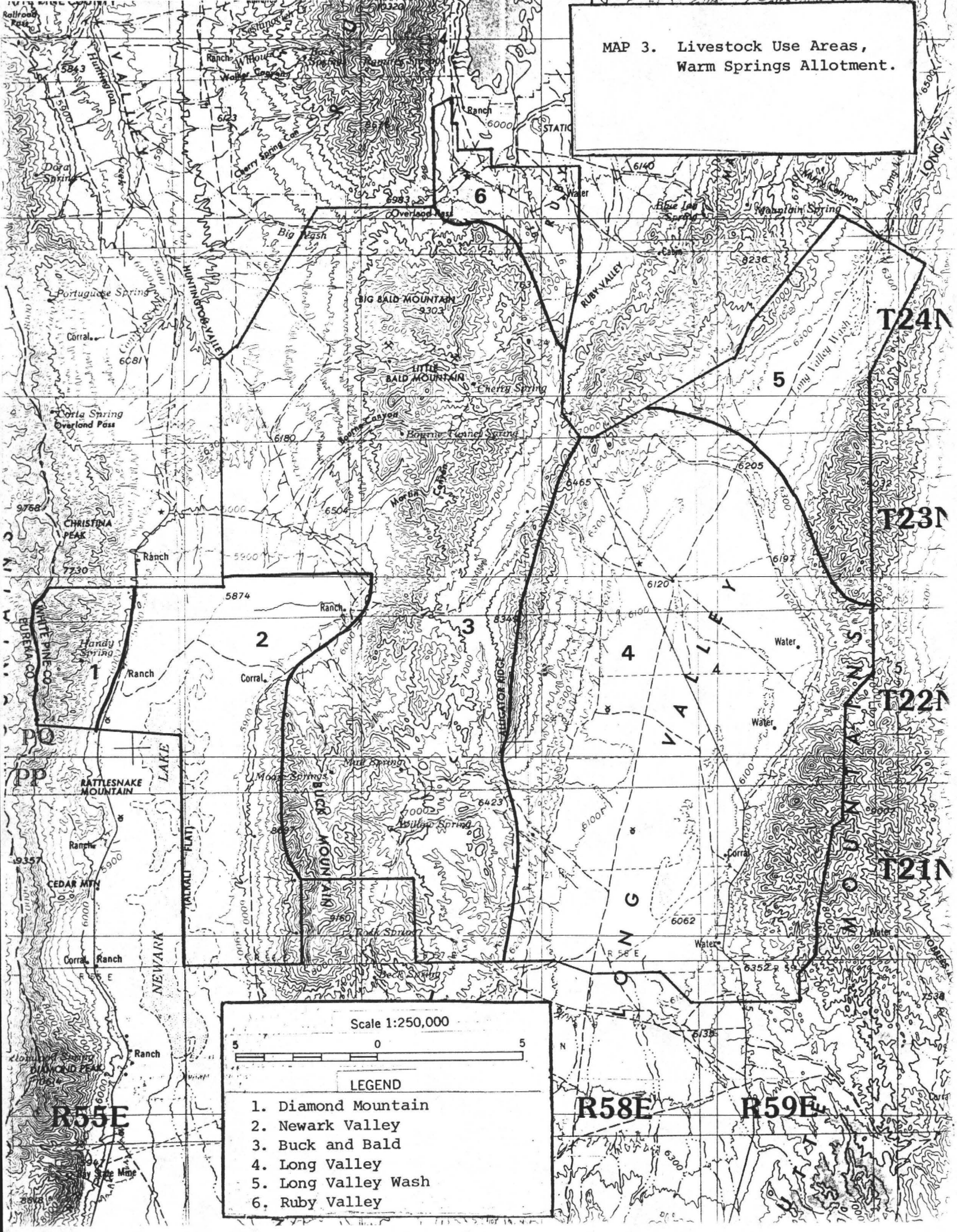
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LEGEND

Allotment Boundary

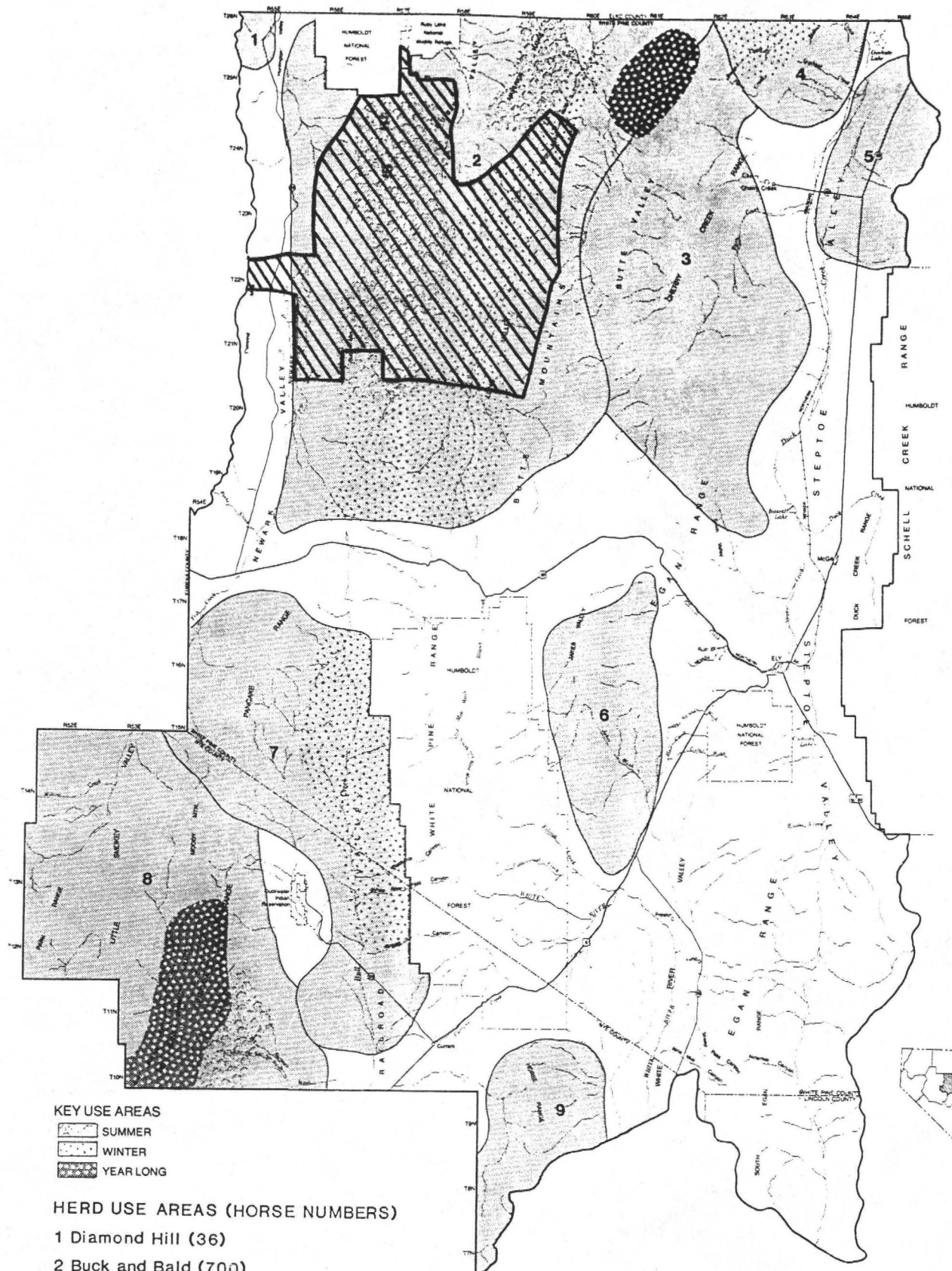
MAP 3. Livestock Use Areas,
Warm Springs Allotment.



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LEGEND

1. Diamond Mountain
2. Newark Valley
3. Buck and Bald
4. Long Valley
5. Long Valley Wash
6. Ruby Valley



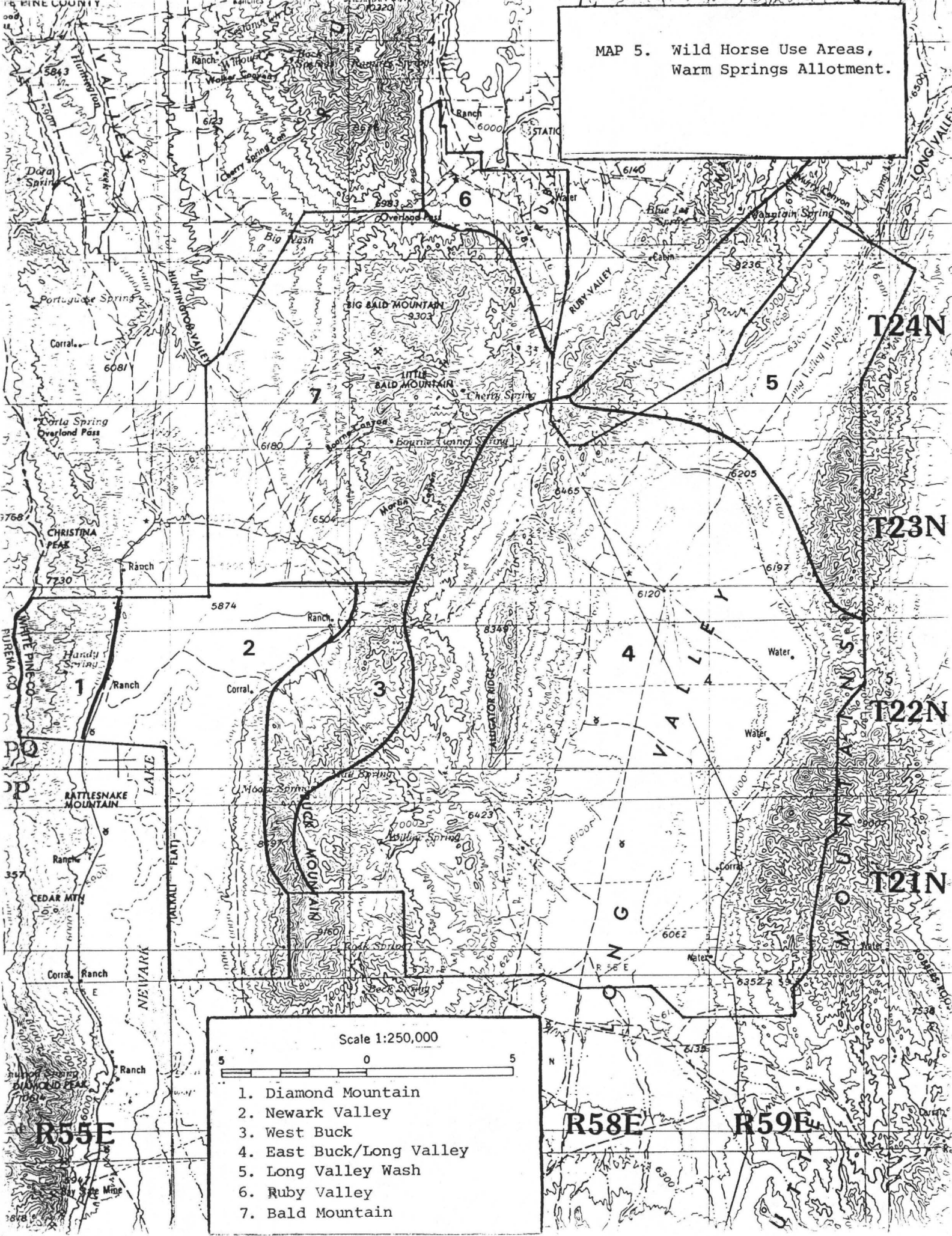
KEY USE AREAS
 SUMMER
 WINTER
 YEAR LONG

HERD USE AREAS (HORSE NUMBERS)

- 1 Diamond Hill (36)
- 2 Buck and Bald (700)
- 3 Butte (60)
- 4 Cherry Creek (11)
- 5 Antelope (14)
- 6 Jakes Wash (20)
- 7 Monte Cristo (96)
- 8 Sand Springs (494)
- 9 White River (20)

MAP 4. Warm Springs Allotment in relation to Buck and Bald HMA boundaries.

MAP 5. Wild Horse Use Areas,
Warm Springs Allotment.

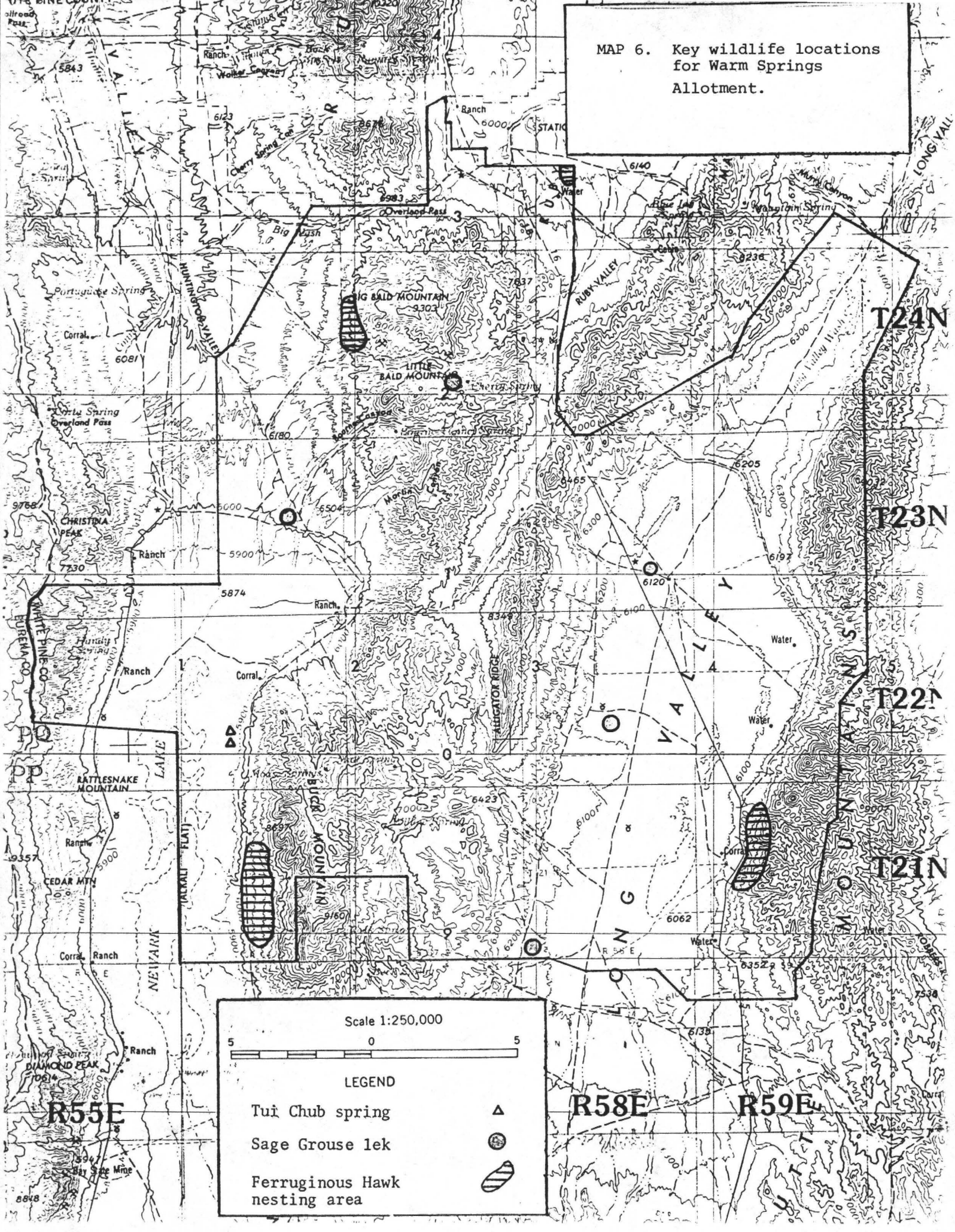


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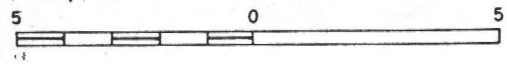
5 0 5

1. Diamond Mountain
2. Newark Valley
3. West Buck
4. East Buck/Long Valley
5. Long Valley Wash
6. Ruby Valley
7. Bald Mountain

MAP 6. Key wildlife locations for Warm Springs Allotment.



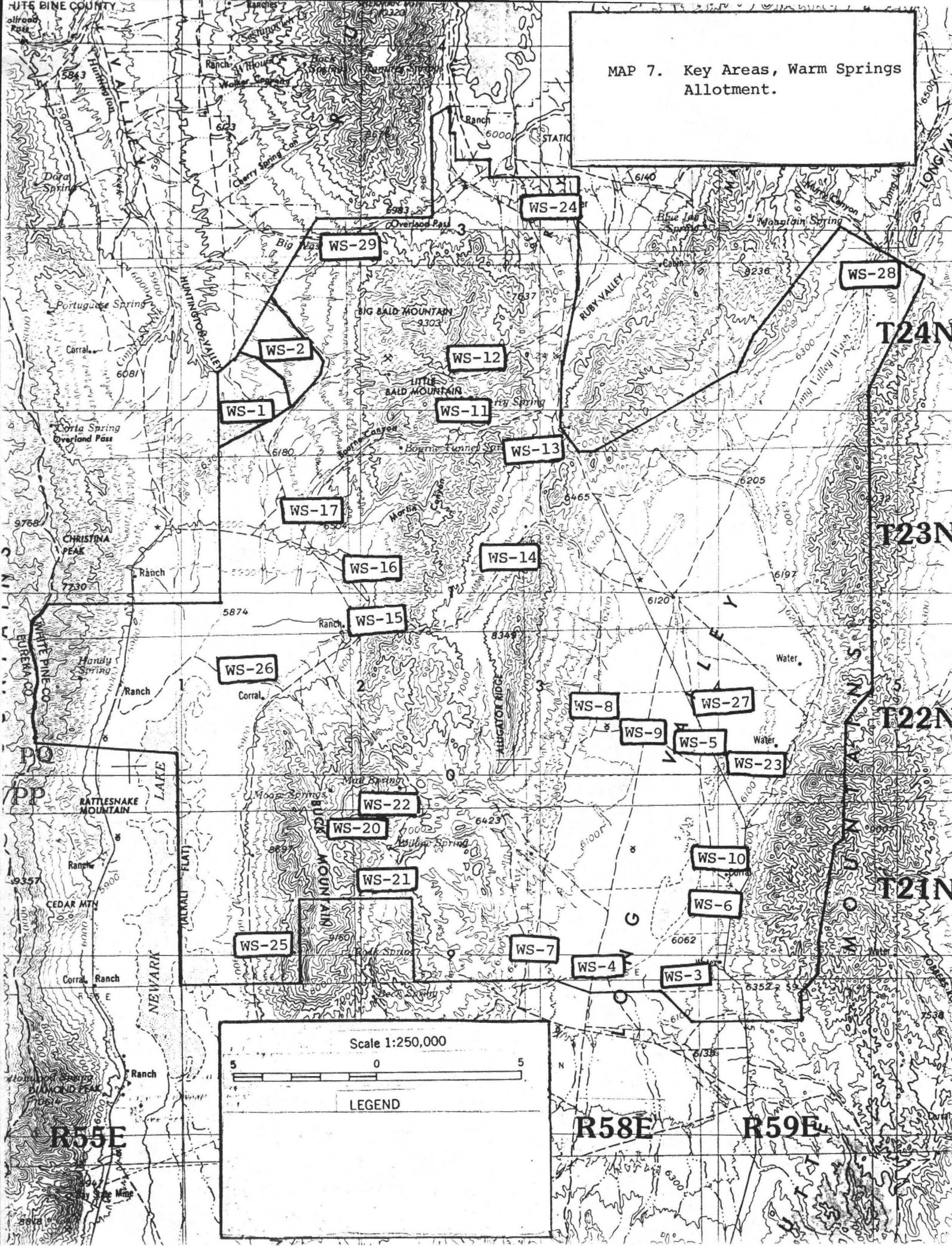
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LEGEND

- Tui Chub spring
- Sage Grouse lek
- Ferruginous Hawk nesting area

MAP 7. Key Areas, Warm Springs Allotment.



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LEGEND