THE MONACHE DEER HERD PLAN

1981

LOCATION MAP
MONACHE DEER HERD

FIGURE 1

THE MONACHE DEER HERD PLAN

by

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APPROVED

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I. Introduction

Deer herds throughout most of California experienced severe long-term declines during the late 1960's and early 1970's. Department programs at that time were incapable of reversing downward population trends, or of adequately satisfying concerns of hunters and other interested publics. Therefore, the Department initiated a program in 1975, to address the problem. Through the efforts of a special "blue ribbon" committee, Department deer specialists, and the interested publics, a statewide strategic plan for California deer was developed in 1976. Emphasis was added to the program by legislative mandate (AB-1521, September 1977). A new Deer Management Policy was subsequently adopted by the Department and the Fish and Game Commission specifying that: 1) planning for deer management be on a herd basis; 2) a management plan would be prepared for every individual deer herd in California; 3) selected program elements would be addressed in each herd plan; and, 4) herd plans would generally conform to the goals of the statewide strategic plan.

This document complies with the legislative mandate and policy commitment to specifically plan for the management of the Monache deer herd. Organization of the plan follows a format including: 1) description of the deer population and the physical environment which constitutes its range and habitat; 2) management goals; 3) problems affecting herd recovery; 4) management programs, objectives and recommended prescriptions; 5) alternatives; 6) selected references; and, 7) an appendix containing supporting information. Since herd plans are dynamic, periodic review and update are integral parts of the planning process. As additional information is obtained the plan will be revised as appropriate.

The Monache deer herd is somewhat unique in that signs of a serious decline appeared as early as 1956. In addition, the downward population trend appeared to have reversed by 1970, when most other herds in California had either stabilized

at low levels or were continuing downward. A lack of specific deer population data limits confidence in estimating the exact timing and magnitude of these fluctuations. The present herd population is estimated to number between 6,000 and 7,000 animals and is believed to be increasing.

Although the Department of Fish and Game has management responsibility for deer, basic land management within the herd unit is primarily the responsibility of the U. S. Forest Service, and the Bureau of Land Management. Therefore, comprehensive management of the herd and habitat will require close coordination between both of these public agencies and the Department in development of equitable resource allocation programs. This plan is intended to provide fundamental guidance to such programs.

II. Description and History of the Monache Deer Herd and Its Range

A. The Deer Population

The Monache deer herd is located in eastern Kern and Tulare Counties and the extreme southwestern portion of Inyo County (Figure 1). Deer that inhabit this range are primarily Inyo mule deer (Odocoileus hemionus inyoensis). Evidence based on metatarsal measurements taken at a hunter check station in 1980 indicates that California mule deer (O. h. californicus) also intermingle on a common summer range. Further studies will be necessary to refine the herd boundary and to determine whether only Inyo mule deer migrate east to winter in southwestern Inyo County as suspected, or whether both sub-species share common winter ranges. The California mule deer are thought to migrate south to the Long Valley area.

Longhurst et al. (1952) estimated that approximately 14,000 deer inhabited the Monache herd range annually during the period 1947-49. However, this estimate was derived for an area roughly 50 percent larger (1430 mi^2 vs. 950 mi^2) than the herd unit now recognized. Another estimate of the average population size for the period 1955-79 was derived using a ratio-estimation method described by Anderson et al. (1974). This method produced an estimate of 6,360 deer. Using 1979 herd composi- and harvest data in yet another method described by Craig and Ashcraft (1976), an estimated herd size of 7,357 was obtained. These estimates were based, in part, on average herd performance data obtained on similar herds elsewhere. There are indications that Monache deer may be atypical in many respects (i.e., annual adult mortality) and that these estimations may need refining. To refine these estimates, a computer simulation model will be developed for the herd as additional specific herd performance data are obtained from more intensive inventories.

LOCATION MAP
MONACHE DEER HERD

FIGURE 1

Herd composition data have been collected sporadically on the Monache herd since 1951 (Appendix I). A mean fall fawn ratio of 41:100 does indicates poor fawn survival prior to fall migration since reproductive potential should approach 155 fetuses:100 does (Jones, 1953). Spring fawn ratios averaged 30:100 does during the period 1975 to the present. These data generally indicate that buck carryover from year-to-year is good and that poor fawn recruitment appears to be the major intrinsic factor limiting the Monache herd. However, recent studies on southwestern deer herds in similar arid areas (Short, 1979) indicate that low fawn production may be normal on this type of range and that longevity of adult does may be the deciding factor in herd viability.

The reported hunting harvest of deer from the Monache herd has been consistently recorded since 1955. Some estimates of the buck take prior to 1955 are also available. The general trend involves a peak in the reported buck harvest during the period 1947-52 followed by a general decline through the late 1960's. A general increase in the buck take is evident since 1970, but this must be tempered with the knowledge that hunter access improved significantly during this same period, and improved access would account for at least a part of the increased buck kill. The average annual reported harvest for the period 1955-74 is 135 bucks. More recently (1975-80), the reported buck kill has increased to average about 165 animals. Since there have been no significant changes in range conditions to account for the sudden increase in the buck kill in recent years, the improvement must be considered as temporary and probably related to either improved hunter access or improved weather conditions. There is also strong evidence to indicate that past doe hunts may have reduced fawn production to the point that the herd population was affected,

and normal low herd recruitment rates have prevented a rapid recovery once these hunts were eliminated. The population "low" in the late 1960's coincided with cessation of doe hunts, and the herd population has shown an upward trend since.

A total of 1,041 antlerless deer were harvested on the Monache unit during the period 1956-67. The number of permits sold annually varied from a high of 769 in 1961, to a low of 30 in 1966.

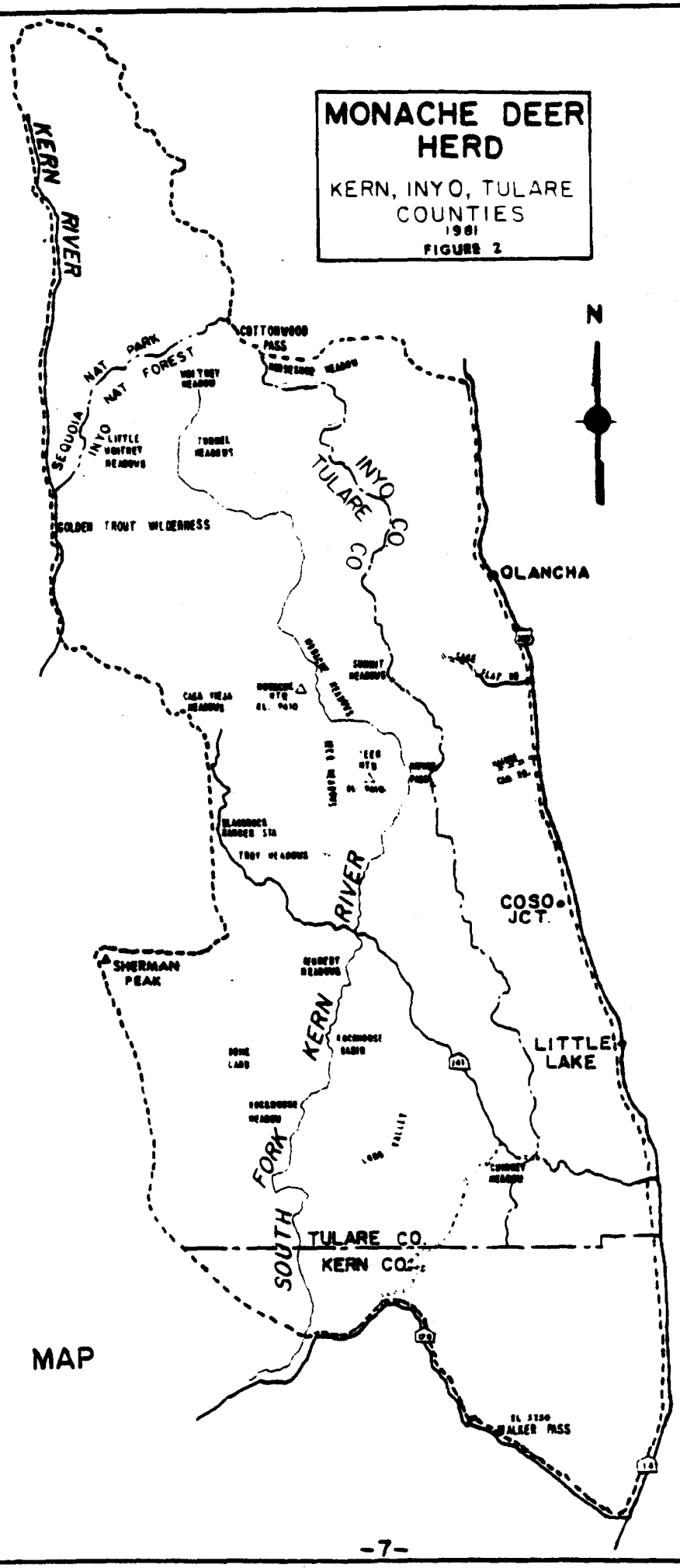
A special post-season buck hunt was initiated on the Haiwee winter range in 1978. During three successive hunts (1978-79-80), a total of 150 permits were issued and 72 bucks were harvested.

B. The Herd's Range

The Monache deer herd range encompasses approximately 607,900 acres (950 square miles). The range is dominated by the rugged crest of the Sierra-Nevada Mountains which bisects the area in a north-south direction. Elevations range from above 12,000 ft. m.s.l. along the Sierra crest in Sequoia National Park, to 4,000 ft. m.s.l. along the desert slopes in southwestern Inyo County. The western and central portions of the range include the Kern Plateau, while the eastern portion is dominated by a steep escarpment (Figure 2). Radio-telemetry data indicate that the northern herd boundary extends into Sequoia National Park, but more exact data are needed to define this boundary.

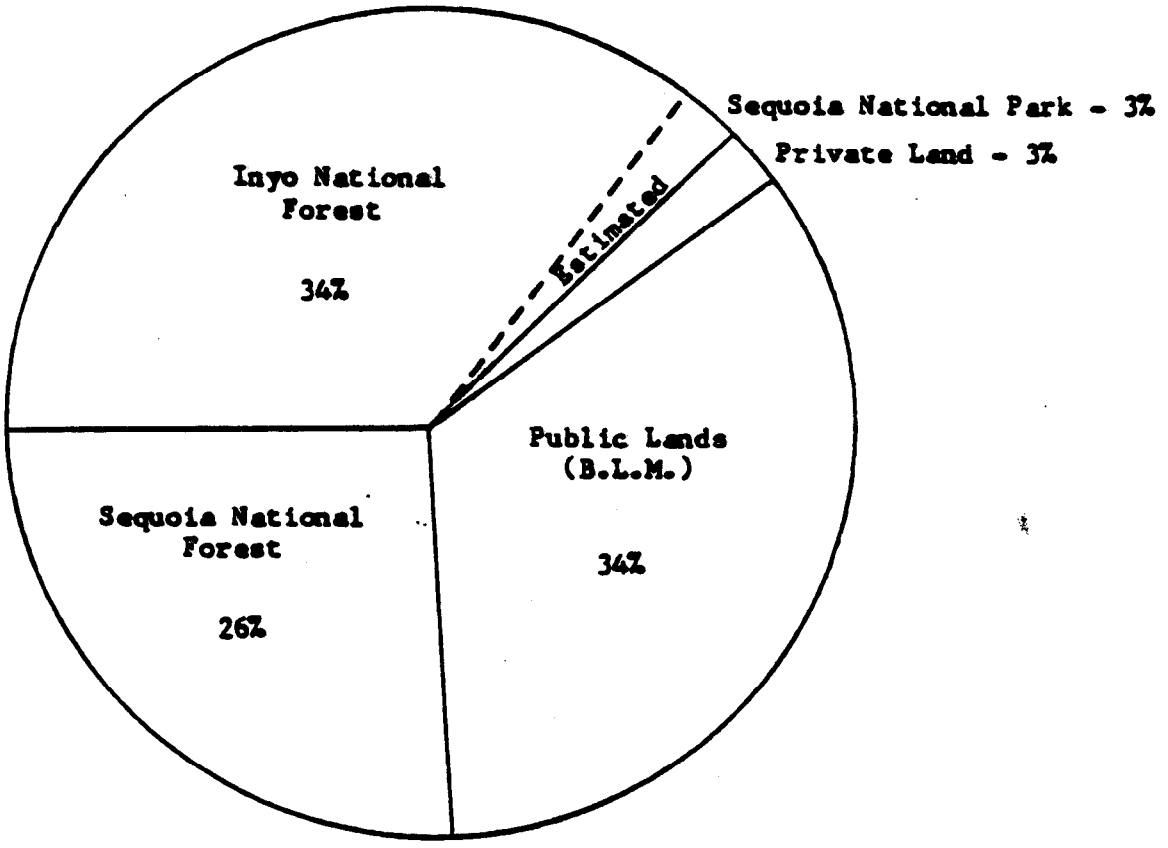
Land ownership is primarily public. Approximately 97 percent of the total range is managed by either the U. S. Forest Service, Bureau of Land Management, or the National Park Service (Figures 3 and 4).

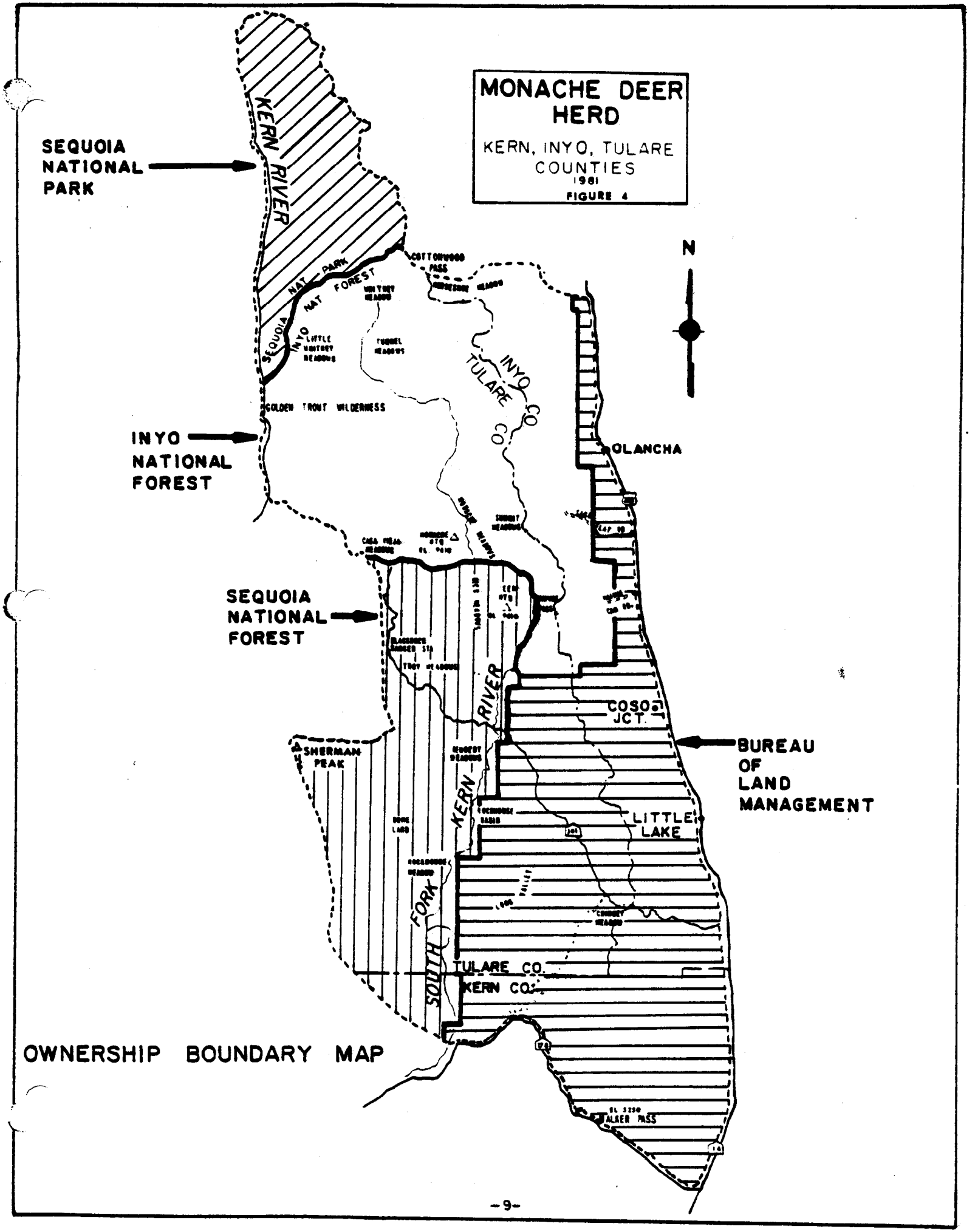
The range of the Monache deer herd is best described in terms of the various seasonal components that make up the range as a whole. These components include summer, winter, and intermediate ranges (Figure 5). Each

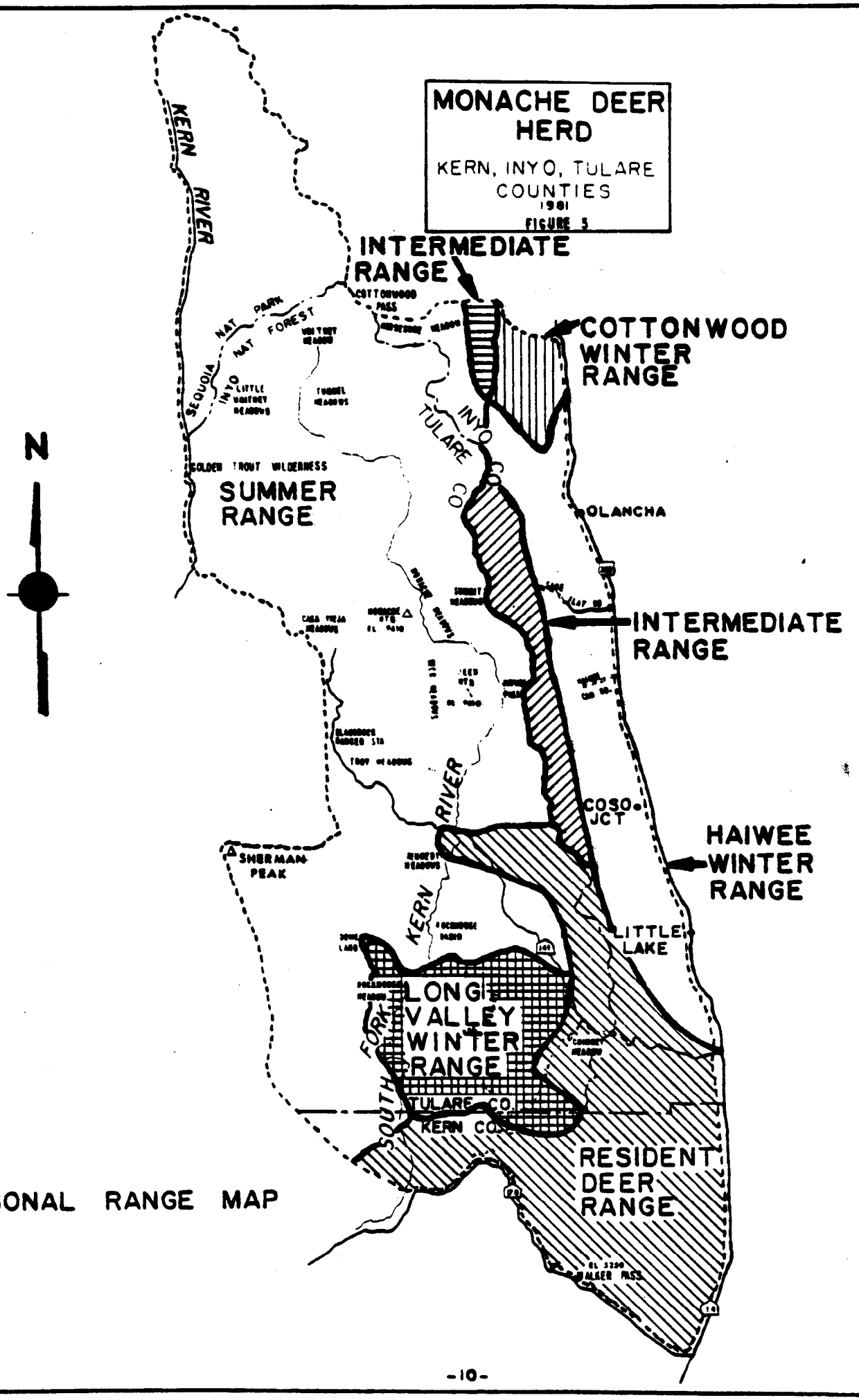

MONACHE DEER HERD
KERN, INYO, TULARE COUNTIES
1981
FIGURE 2
N
KERN RIVER
SEQUOIA NAT PARK
INYO NAT FOREST
COTTONWOOD PASS
GOLDEN TROUT WILDERNESS
INYO CO
TULARE CO
OLANCHA
COSO JCT.
SHERMAN PEAK
KERN RIVER
SOUTH FORK
LITTLE LAKE
TULARE CO.
KERN CO.
WALKER PASS
BOUNDARY MAP

LAND OWNERSHIP OF THE MONACHE DEER HERD RANGE

Figure 3




MONACHE DEER HERD
KERN, INYO, TULARE COUNTIES
1981
FIGURE 4
SEQUOIA NATIONAL PARK
INYO NATIONAL FOREST
SEQUOIA NATIONAL FOREST
BUREAU OF LAND MANAGEMENT
KERN RIVER
SEQUOIA NAT PARK
INYO NAT FOREST
COTTONWOOD PASS
INYO CO
TULARE CO
GOLDEN TROUT WILDERNESS
OLANCHA
SHERMAN PEAK
COSO JCT.
LITTLE LAKE
SOUTH FORK KERN RIVER
TULARE CO.
KERN CO.
ALBER PASS
N
OWNERSHIP BOUNDARY MAP



SEASONAL RANGE MAP

of these components can be further divided and described according to their specific use by deer (i.e., fawning areas, migration corridors, and holding areas (Appendices III-V). Each contains habitat essential to their purpose, and because each serves a separate function, each must be considered as key habitat elements necessary for herd viability.

1. Summer Range

Summer range describes all areas where Monache deer spend their summer months; an estimated 435,000 acres (71 percent of the total range) are in this category. However, based on deer tag returns and field observations of deer use, the better summer range is probably restricted to less than ten percent of this total. Monache deer normally move onto the summer range in late April, or early May of each year and remain there until inclement weather and subsequent forage conditions force them to leave, usually in mid-November or early December. In general, all areas west of the Sierra Crest and north of Kennedy Meadows are considered summer range.

Summer range vegetation can generally be described as ranging from a sagebrush-shrub type under an open Jeffrey pine-juniper canopy in the lower elevations, to an increasing predominance of conifers as elevations increase on the northern end of the Kern Plateau. Scattered throughout the range are an above-average number of meadows ranging in size from only a few hundred square feet to several hundred acres such as in Monache Meadow.

Common ground cover throughout the summer range includes big sagebrush (Artemesia tridentata), antelope bitterbrush (Purshia tridentata), mountain mahogany (Cercocarpus ledifolius), greenleaf manzanita (Arctostaphylos patula), bush chinquapin (Chrysolepsis sempervirens),

and a large variety of grasses, sedges, and rushes in the meadow areas.

Within the summer range boundary are highly specific habitats such as fawning areas and migratory delay sites or holding areas. Fawning areas are those sites on the summer range where does give birth to fawns. However, all fawning areas do not contain adequate habitat to assure survival of newborn fawns. In many cases, sub-optimum habitat, territorial dominance by other does, human disturbance, or other factors cause does to give birth in sub-optimal areas. Fawn survival is generally low in such areas. A site that is relatively unaffected by these detrimental factors and is known to provide all the essential habitat components to successfully produce and rear fawns is termed optimum fawning habitat. Studies have shown that a minimum of seven to ten acres containing a combination of open water, dense vegetation for concealment, and a supply of succulent, nutritious forage are the basic requirements for an optimum fawning site (Holl 1974). This combination of food, water, and cover is most often found associated with small meadows and riparian zones. Not all optimum fawning habitat on the summer range has been located and mapped. However, field observations and other data indicate that these highly important sites are limited in both quality and quantity, over a large part of the herd's summer range. Although meadows are abundant on the Kern Plateau, vegetation necessary for concealment is rarely available in the majority of these sites. Heavy losses of new-born fawns, as documented by fall composition counts, indicate a scarcity of optimum fawning sites. On this basis, more optimum fawning sites must be developed to successfully increase herd size.

Most fawning habitat of the Monache herd is found at elevations ranging from about 6,500 ft. m.s.l. to 10,000 ft. Does normally migrate to these sites in early June and habitually return to the same area to drop their fawns every year. Peak use of these sites is between about June 25, and July 20.

Holding areas on the summer range are used as delay sites during both spring and fall migrations. The only documented holding area is along the east and south sides of Monache Meadow. In this area, migrating deer commonly pause from about October 1, to about November 15, until inclement weather forces them to complete the last leg of their migration to the Haiwee winter range. Radio-telemetry studies have documented the use of this same area during spring migration. Field surveys also indicate the use of the area immediately north of Long Valley as a fall holding area. Dense protective cover and a plentiful supply of nutritious forage are critical components of holding areas. Ideally, about 40 percent of a good holding area should be in dense vegetation to provide thermal cover and concealment (North Kings Notes, 1979).

2. Intermediate Range

Intermediate range is the rather limited area between normal summer and winter ranges, and its primary use is during migration. Along both upper and lower fringes of this range, fall and spring holding areas may occur. Vegetative limitations, including a lack of preferred browse plants beneath closed canopies of trees, are often the primary reasons that deer migrate quickly through their intermediate range rather than to use it as summer range. The Monache deer herd range is unique in that only a very small percentage of the total range is

in this category. The entire east side of the range contains very little intermediate range because of the relatively short migration route between winter and summer ranges.

Vegetation on these ranges is composed primarily of juniper (Juniperus spp.), pinyon (Pinus monophylla) and tree-like mountain mahogany, with sparse understories of California lilac (Ceanothus spp.), bitterbrush, and sagebrush. Further north, in the Cottonwood drainage, Jeffrey pine (Pinus jeffreyi) becomes the dominant conifer.

3. Winter Range

Winter ranges of the Monache deer herd are located at elevations between about 4,000 ft. and 6,500 ft. m.s.l. Three distinct winter ranges of the herd are known to exist. For purposes of this report they have been designated the Haiwee, Cottonwood, and Long Valley winter ranges (see Figure 5). Deer usually begin to arrive on all three ranges by November 15 of each year and remain until mid-April or early May. The Haiwee winter range is by far the more important in terms of supporting the most deer, followed by Cottonwood and then Long Valley. The heart of the Haiwee range encompasses an area of about 38,000 acres extending along the base of the Sierra escarpment for a distance of approximately 30 miles between Olancha Creek and Five Mile Canyon. A series of major canyons extend upward from the desert floor, and each supports sizeable numbers of deer through the winter. During early morning and late evening hours, and throughout many nights, wintering deer work down out of these canyons to forage on the desert flat. The same situation occurs on the Cottonwood winter range, located on an estimated 6,400 acres in the extreme northeast corner of the Monache deer herd range. The Long Valley

winter range covers an estimated 52,000 acres. Earlier studies (Jones 1953) considered Long Valley to be the most important winter range of the Monache herd. However, since that time the number of deer wintering in Long Valley has dwindled to the point that deer are relatively scarce and not easily seen. The reasons for this decline in use are not fully known, but normal plant succession and conflicts with livestock and humans are suspect.

Vegetation on the higher elevations of the Cottonwood and Haiwee winter ranges is dominated by pinyon in open woodlands. Associated with pinyon are junipers and mountain mahogany. Important understory shrubs include sagebrush, bitterbrush, and rabbitbrush (Chrysothamnus viscidiflorus).

On the lower, more open east-side slopes, dominate vegetation includes sagebrush, bitterbrush, creosote bush (Larrea divaricata), saltbush (Atriplex spp.), hopsage (Grayia spinosa), Mormon tea (Ephedra spp.), goldenbush (Haplopappus spp.), winterfat (Ceratoides lanata), burrobrush (Hymenoclea salsola), bladdersage (Salazaria mexicana), buckwheat (Eriogonum fasiculatum), and desert peach (Lycium andersonii).

Although quite sparse, canyon live oak (Quercus chrysolepsis), black oak (Quercus kelloggii), willow (Salix spp.), cottonwoods (Populus spp.), water birch (Betula occidentalis), and white alder (Alnus rhombifolia) are found in many of the major canyons transversing these winter ranges.

The Long Valley winter range is dominated by pinyon pine and sage. Composition of these two major species ranges from 55 percent pinyon - 30 percent sage along the flanks of the valley, to 42 percent sage - 14 percent pinyon up the valley floor. Buckwheat, Mormon tea, rabbitbrush, bitterbrush, scrub oak (Quercus sp.), and California lilac are also present, but in much smaller quantities.

C. Range History

The forces which have affected the Monache deer herd and its range have only been recorded over the past 140 years. During that time, natural plant succession has played a major role in reducing deer habitat quality. The recent influx of men and his associated activities have had an even greater effect on habitat. Livestock grazing, fire control, timber harvest and water appropriation have all had their effect on deer numbers. The present problems confronting this herd are a direct result of the combined effects of these and other human activities.

Historic journals indicate that the Paiute and Shoshone Indian tribes both hunted the range of the Monache deer herd. Evidence of earlier Indian use is found in the form of petroglyphs, but little other information exists on these earlier occupants and their use of the area. John Muir described the deer hunting practices of the Indians he saw, including their use of fire to drive the animals within killing range. Through these hunting methods, a substantial acreage of range must have burned annually and this undoubtedly contributed to favorable habitat conditions for deer.

The first use of the area by early settlers was for livestock grazing. Because of drought conditions in the San Joaquin Valley, and as far south as San Diego, livestock was first brought to the Owens Valley and the Kern Plateau, on a temporary basis, in about 1840.

Old Inyo National Forest records indicate that the Kern Plateau was used regularly for livestock grazing as early as 1850. One estimate by an Inyo Forest range employee stated that as many as 15,000 cattle were grazing from Monache Meadows to Rockhouse Basin in early 1852. John Muir also tells of trailing sheep from Bakersfield through Big Whitney Meadows, all the way to Tuolumne Meadows.

The first reported white settlers came to the Owens Valley area in 1861. They brought about 600 head of cattle and 50 horses with them and established camp near the present site of the city of Bishop. From there they supplied both beef and horses to the silver miners in the area. Early records show that over 40,000 cattle were using the Kern Plateau by the late 1860's. Venison was also commercially available, furnished by Indians and professional hunters. Mining activities never really played an important part in the area as early mineral explorations failed to locate mineral deposits of significance. Only one mine is presently active near Bald Mountain with another only semi-active near Chimney Peak. A few homesteads were established on the Kern Plateau in these early days, and many meadows such as Ramshaw and Templeton were claimed under the Swamp and Overflow Act.

During the period 1894-96, weather was dry on the Kern Plateau and not many cattle used the range. However, sheepmen took advantage of the situation and moved bands of up to 10,000 sheep into the area during these years. The cattlemen returned again in 1897, and during the ensuing two years bitter friction developed between cattle and sheep interests. By the end of 1898, tremendous losses caused the sheepmen to abandon their use of the Kern Plateau. Since that time, little or no grazing of sheep has taken place.

Cattle grazing continued to be extremely heavy on the Kern Plateau, and in 1930, Inyo National Forest records show that sheep and gulley erosion was becoming a serious problem in most of the mountain meadow areas. As early as 1931, forest range technicians recommended that the number of cattle using the plateau be reduced to 1,000 head. It wasn't until 1948 that a reduction was made, and even then, the allotment was only reduced

to 3,300 head. The reduction in cattle numbers came about so late that many of these meadows may never naturally recover. Since 1948, cattle numbers on the Kern Plateau and the lower winter ranges have been gradually reduced to the present level of 2,285 head on USFS allotments, with an additional 889 head of cattle and 150 head of sheep using the winter range of the Monache deer herd under permit from the BLM.

Administration of National Forest lands on the Kern Plateau has undergone several changes over the years. In 1905, the area was designated as part of the Sierra Forest Reserve and was administered by the Kern National Forest. A transfer to the Sequoia National Forest and then back to the Kern National Forest finally resulted in the area being divided between the Sequoia and Inyo National Forests. Today, jurisdiction of the Kern Plateau is about evenly divided between Inyo and Sequoia National Forests.

Logging activity on the Monache deer herd range had been relatively insignificant prior to 1963. Until that time, activity consisted of logging for cabin and corral material with some logging of pinyon pine on the Sierra slope above Olancha for charcoal production in association with the mines. The first serious logging efforts on the Kern Plateau began when a road was constructed from Kennedy Meadow to Beach Ridge in 1965. Since 1956, approximately 504,000,000 board feet of lumber have been removed from this area. Clear cutting has not taken place and logging has been restricted to thinning and other highly selective cuts; the result has been that the forest canopy has remained relatively intact, with little benefit to browse plants on the forest floor.

The effects of fire on this range since the days of Indian-caused burns were largely unknown until records were started in 1940. Since then only

four fires in excess of 100 acres have burned on the summer range; the 1951 Woodpecker fire of 5,000 acres, the 1957 Dome fire of 205 acres, the 1959 Olancha Peak fire of 180 acres, and the 1980 Clover fire of 5,030 acres. The Flat fire of 1975 did not reach the range of the Monache deer herd. On the winter range three fires of over 100 acres have been recorded. In 1940, the Diaz Creek fire burned 890 acres of sage and buckwheat. The 1947 Nine Mile Canyon fire burned 820 acres of mostly pinyon pine. The Georges Creek fire of 1949, burned 480 acres of bitterbrush. Since that time there have been no burns of any consequence in this portion of the herd's range.

Access into the Kern Plateau area was limited to the Nine Mile Road and the Trail Peak Road until 1960. These roads covered only about 21 miles and did not extend into the better summer range areas in Monache Meadows. In 1960, an access road from Highway 178 to Chimney Peak was constructed and the Sherman Pass Road was completed in the late 1960's. These four main access roads now connect to a network of high standard logging roads covering a total of 75 miles that can be traveled by conventional vehicles. An additional 55 miles of four-wheel-drive roads penetrate the area. It is estimated that construction of roads has increased vehicular use on the summer ranges of the Monache deer herd by at least 500 percent since 1960.

Water resources in the herd range remained untouched until construction of the Los Angeles Aqueduct was completed in 1913. This project drained Owens Lake and appropriated water from the Owens River. The aqueduct project also dried the valleys bordering the eastern slope of the Sierras by lowering water tables with the result that much range formally inhabited by deer is no longer used.

D. Problems Affecting Herd Recovery

Problems affecting herd management and the attainment of management goals, include:

1. Long-term deterioration of habitat on both summer and winter ranges.
2. Excessive fawn losses on the summer range.
3. A lack of open water on the Haiwee winter range.
4. Limited access into much of the summer range, which inhibits intensive inventories of herd and range conditions.
5. Less than optimum fawn survival on all winter ranges.
6. Marginal forage and cover conditions over most of the key winter range.
7. Annual recruitment of yearling deer into the herd is insufficient to significantly increase the number of breeding-aged does in the herd.
8. Conflicting land uses, including livestock grazing and recreational pursuits, are either physically detrimental to deer habitat or are inhibiting the use of potentially productive habitat by deer.
9. Excessive hunting pressure in the Monache Meadow complex is adversely affecting hunting enjoyment and the survival of yearling bucks in the herd.
10. Excessive vehicular access within the Monache Meadow complex is responsible for high vulnerability of deer to both legal hunters and poachers -- this particularly affects the younger aged classes of bucks.
11. Administrative and financial constraints are limiting the Department's warden force from dealing effectively with the problem of illegal hunting activities.

12. Financial and manpower constraints are delaying or limiting biological studies necessary to gain a sufficient body of information to effectively manage the deer herd and its range.

13. Increasing residential developments in the Kennedy Meadow area and the Long Valley winter range are detrimental to migrating and wintering deer.

Tulare Co.

14. Recent planning changes have altered the proposed route of the Pacific Crest Trail, and the new route could be detrimental to the herd. The trail segment running through Cow Canyon, and northward through Big Brush Meadow is of particular concern.

III. Management Goals

A variety of environmental factors cause annual fluctuations in the herd population. These fluctuations are considered normal in the preparation and achievement of goals. Since habitat conditions and the population are both dynamic, goals for the Monache deer herd are generally discussed within desirable ranges.

The primary management goal for the Monache deer herd is to maintain an annual spring population between 8,000 and 9,000 animals that is capable of supporting an annual reported hunter harvest between 300 and 350 bucks.

Selection of a suitable goal in terms of deer numbers, is at best argumentative. However, a reasonable goal would be to restore deer numbers to some level that occurred prior to the drastic reductions witnessed in the early 1950's. A spring deer population of 8,000 to 9,000 animals is believed to compare with the 1950 population, and most importantly, to be reasonably obtainable under present constraints and other land-use priorities.

To accomplish this goal, certain range conditions and herd parameters must be met; these include:

1. Land-use priorities must be re-evaluated and range improvements must be undertaken to assure enough quality deer habitat to permanently support a spring population of 8,000 to 9,000 animals.
2. Spring fawn ratios must be improved and maintained at a minimum of 45 fawns per 100 does during cycles when the herd population is lower than usual, to assure an adequate annual recruitment of new animals into the herd. During high population cycles, a minimum of 30 to 35 fawns per 100 does may be adequate.

3. Post-season buck ratios should be maintained at a minimum of 25-30 bucks per 100 does to improve hunting quality and non-consumptive enjoyment of the herd.

4. More efficient and innovative management techniques must be employed to improve overall hunter success to at least 15 percent during the regular season, and to make better use of the herd's annual surplus.

IV. Management Programs, Objectives and Recommended Prescriptions

The following management programs and recommendations are designed to mitigate or eliminate problems listed in the previous section and to ultimately achieve plan goals. Each of these prescriptions constitute the preferred alternative after considering various other options and the constraints and trade-offs inherent in all options.

A. Inventory and Investigative Element

1. Objective

To collect and maintain a sufficient body of information to document present conditions and to effectively manage the Monache deer herd and its range in the future.

With one exception, no intensive investigations have been conducted on this herd until quite recently. A Department study conducted in 1951-53 (Jones 1953), included data from the Monache deer herd. However, the study encompassed an area much larger than the presently recognized range of this herd. Segments of that study continue to provide valuable comparative data for use at this time.

A lack of vehicular access and extremely rugged terrain over large portions of the herd's range have severely inhibited investigative field work over the years. Limited information gathered to date has been largely obtained from informal field surveys. In comparison to studies such as the Jawbone Deer Herd Study (Leopold et al. 1951) and the ongoing North Kings Deer Herd Study (Department of Fish and Game, in progress), the Monache deer herd has received very little attention. Because of this lack of investigative work, present information on herd and range conditions is limited. To expand the data base, specific new studies have recently been implemented. Beginning in 1979, priorities were

directed toward more intensive management of the Monache deer herd. Radio telemetry studies and other more intensive field studies have been implemented. In early 1980, four adult does were captured on the Haiwee winter range between Sage Flat and Talus Canyon and equipped with radio transmitters. Two adult bucks from the same area were marked with ear tags only. Information presently lacking on migration corridors, holding areas, and fawning sites should be largely supplied by these ongoing radio telemetry studies. By monitoring deer movements through a complete annual migration cycle, basic information on the location and use of key range components will be documented. Information on key areas will be expanded annually as additional deer are trapped and equipped with radio transmitters over the next few years.

2. Recommended Prescriptions

a. To fully implement the telemetry investigation, at least 15 additional adult does should be captured and equipped with radio transmitters. Five of these animals should come from the Cottonwood winter range, five from the Haiwee winter range south of Talus Canyon, and five additional animals should come from the Sage Flat-Talus Canyon area on the Haiwee winter range.

b. Continue winter and spring herd composition counts on major deer concentration areas on the Haiwee and Cottonwood winter ranges. Data should be collected separately for: 1) Cottonwood, 2) Haiwee area between Haiwee Canyon and Olancha Creek, and 3) Haiwee area south of Haiwee Canyon. A minimum sample of 250 deer should be counted in each of these range segments.

c. Herd composition counts should be initiated on the Long Valley winter range. A minimum sample of 250 animals should be counted during normal late fall and spring periods.

d. The entire range of the Monache deer herd should be vegetatively mapped at a scale of approximately 1:24000 to adapt to USFS and BLM land capability inventories. An important prerequisite to improving habitat conditions is the delineation of all vegetative types and then determining the amount of deer use in each type. Vegetative conditions known to be preferred by deer may then be duplicated elsewhere by intensive habitat improvement projects. Some areas avoided by deer can then also be manipulated to address limiting factors or marginal habitat components.

e. Investigations should be initiated to delineate areas where potentially productive habitat is being avoided by deer because of excessive human disturbances. Typical disturbance of this kind commonly occurs along roads and trails and near popular camping areas. Recommendations should then be formulated to coordinate these activities with requirements of deer, while recognizing other public-use priorities.

f. Efforts should be intensified in July and August of each year to locate and map as many fawning sites as possible. By monitoring does during the few weeks immediately following birth of their fawns, it may be possible to document exact times and causes of early fawn losses.

g. Hunter-check stations presently operated on the Kern Plateau near Blackrock Ranger Station and on the Haiwee winter range during special post-season buck hunts, should continue to be manned to gather biological data. Hunting pressure, spot-kill data, age-weight-condition data from harvested animals, a degree of law enforcement and improved public relations are the benefits of these stations.

h. Studies should be undertaken to determine optimum on-off dates for livestock allotments on the Haiwee winter range. At least one segment of the winter range should be grazed by livestock no earlier than May 1 of each year; deer and range responses should then be compared with areas normally grazed while wintering deer are present.

B. Habitat Element

1. Objective

Increase the deer carrying capacity of the range to permanently support a spring population between 8,000 and 9,000 animals.

2. Recommended Summer Range Prescriptions

a. Increase or re-establish protective cover and herbaceous vegetation in known fawning areas at Summit Creek, Honeybee Creek, Long Canyon, Long Stringer, Schaeffer Stringer, Nine Mile Creek, Cabbage Patch, Snake Creek, Granite Knob, Beck Meadow, and Templeton Meadow. Emphasis should be placed on establishment and permanent protection of willows, patches of skunk cabbage, or other vegetation that can provide a place for does to hide their fawns. Protection of this key fawning habitat from livestock damage, by fencing or more satisfactory means, is essential to the success of this prescription.

b. Reduce human disturbance associated with vehicles on the north side of Granite Knob along Snake Creek, in Cabbage Patch, and in Powell Meadow. Roads in these areas should be re-routed, closed permanently, or temporarily closed during the peak of fawning activity (June 15 - July 31). The best combination of these alternatives should be sought, including the possible use of permits.

g. Develop an interdisciplinary Off-Road Vehicle Plan that will resolve conflicts during peak fawning periods (June 15 - July 31), on FS trails 35E01 and 37E01, between Beck Meadows and Dutch John Flat and on the road between Bakeoven Meadows and Kingfisher Ridge.

h. Develop an interdisciplinary Off-Road Vehicle Plan that will resolve conflicts on roads leading into Summit Meadow. Roads in question are those located east of Cow Canyon and north of the South Fork Kern River (Sections 6, 7, 8, 17, 18 - T20S, R36E).

i. Relocate the Monache jeep road out of the aspen patch near Granite Knob.

j. Examine alternative routes for the Pacific Crest Trail that would avoid Cow Canyon and Big Brush Meadow.

k. Throughout the summer range there are specific areas that are of critical importance to viability of the entire herd. The Summit Meadow-Honeybee complex, as an example, serves as a major fall and spring holding area, it contains a major migration corridor, it is one of the most productive fawning areas within the entire herd range, and it produces a significant percentage of the total deer harvested each year by hunters. Obviously, an area of this importance must be given above-average consideration in land-use planning if the objectives of this plan are to be met. Therefore, this area, and others as they can be identified, should be mutually accepted as key habitat areas, and maintenance of optimum deer habitat on these areas should receive top priority in future land management planning.

3. Recommended Winter Range Prescriptions

a. Examine feasibility of restricting livestock use on the Tunawee Allotment (USFS) and the corresponding BLM allotment to the period May 1 through August 31, of each year; implement if agreeable with USFS, BLM, and permittees.

b. At least one permanent source of open water should be available or developed for deer in each major canyon between Olancha Creek and Portuguese Canyon. Each development must be fenced to exclude livestock, and site considerations must be such that livestock will not be attracted to areas previously unused by them.

C. Law Enforcement Element

Law enforcement efforts are presently concentrated in the Monache Meadow area during the summer and fall months, and in the Long Valley and east-slope Sierras during the winter months.

Although the Monache deer herd is seasonally concentrated on the relatively exposed east-slope Sierra winter ranges, and would seem particularly vulnerable to illegal poaching, there is little evidence that a significant law enforcement problem actually occurs there. To the contrary, it is the opinion of local Fish and Game wardens that most illegal deer are taken during the deer season in the Monache Meadow area, in the form of accidentally shot spike bucks and does. A comparison of arrests and the number of dead spikes and does found each year on the two areas lends credence to the wardens' beliefs.

Evidence is presently lacking that illegal deer kill is a significant factor affecting attainment of herd objectives.

1. Law Enforcement Objective. To prevent an increase of illegally taken deer above the 1980 level.

2. Recommended Prescriptions

a. Remove administrative restrictions that presently curtail wardens' automobile mileage and their use of overtime during the more active months of each year.

b. Increase the number of wardens assigned to the Monache Meadow area on all weekends of the annual deer season.

c. Continue to operate Department check stations at Black Rock Ranger Station and Haiwee Canyon on the opening and closing weekends of the deer season.

d. Consideration should be given to making better use of USFS and non-deputized Department employees for additional law enforcement patrol. Deputization of selected USFS employees under the existing "Reserve Warden" program would place more enforcement people in the field during key periods of high public use. Wildlife and fishery personnel in the Department should also be deputized for the same purpose.

D. Utilization Element

The Monache deer herd is presently utilized primarily for sport hunting. Hunting has recently occurred during two periods -- the regular buck season, normally beginning in late September and ending late in October, and during a special late season buck hunt held on the Haiwee winter range in December. Hunting pressure on the Monache herd was comparatively light for many years due to poor access into much of the herd's range. No vehicular access existed into the better hunting areas until roads were constructed over Sherman Pass and into Monache Meadows in the late 1960's.

Unsafe and overcrowded hunting conditions, and the possibility that the Monache Meadow segment of the herd may now be subject to overshooting,

have become problems of particular concern since vehicular access to the area became possible. Car counts on opening weekend of the 1980 season indicated that between 800 and 1,000 hunters were in the Monache Meadow area east of the Snake Creek bridge. Both of these problems have compounded since "zone" hunting was implemented in 1978, probably due in part to an influx of hunters that had previously hunted in the more restrictive adjacent X-9 zone.

Field data suggests an apparent underharvest of larger, mature bucks that summer north of Monache Meadows. Very few of these larger animals are appearing in the hunter's bag during the regular deer season, but many are commonly seen on their winter range. Therefore, special buck hunts on the winter range should continue to be an important part of the utilization plan for the Monache deer herd. These winter range hunts will become increasingly important if hunting pressure is successfully decreased in Monache Meadows, or if the regular deer season is shortened.

Non-consumptive uses of the herd are limited to occasional viewing and photography by backpackers and campers. Specific viewing or photography sites have not been established where these activities can take place on a regular basis. However, suitable sites are available for this purpose and their development for public use should be an integral part of this plan.

1. Utilization Objectives

   a. To provide an average annual buck harvest between 250 and 300 animals.

   b. To improve the quality of the hunting experience by increasing the hunter-success ratio to at least 15 percent, and by decreasing

hunting pressure in the Monache Meadow complex by at least 25 percent.

c. An annual winter harvest of trophy-type bucks on the Haiwee winter range should follow each fall count where buck ratios exceed 25-30 bucks per 100 does.

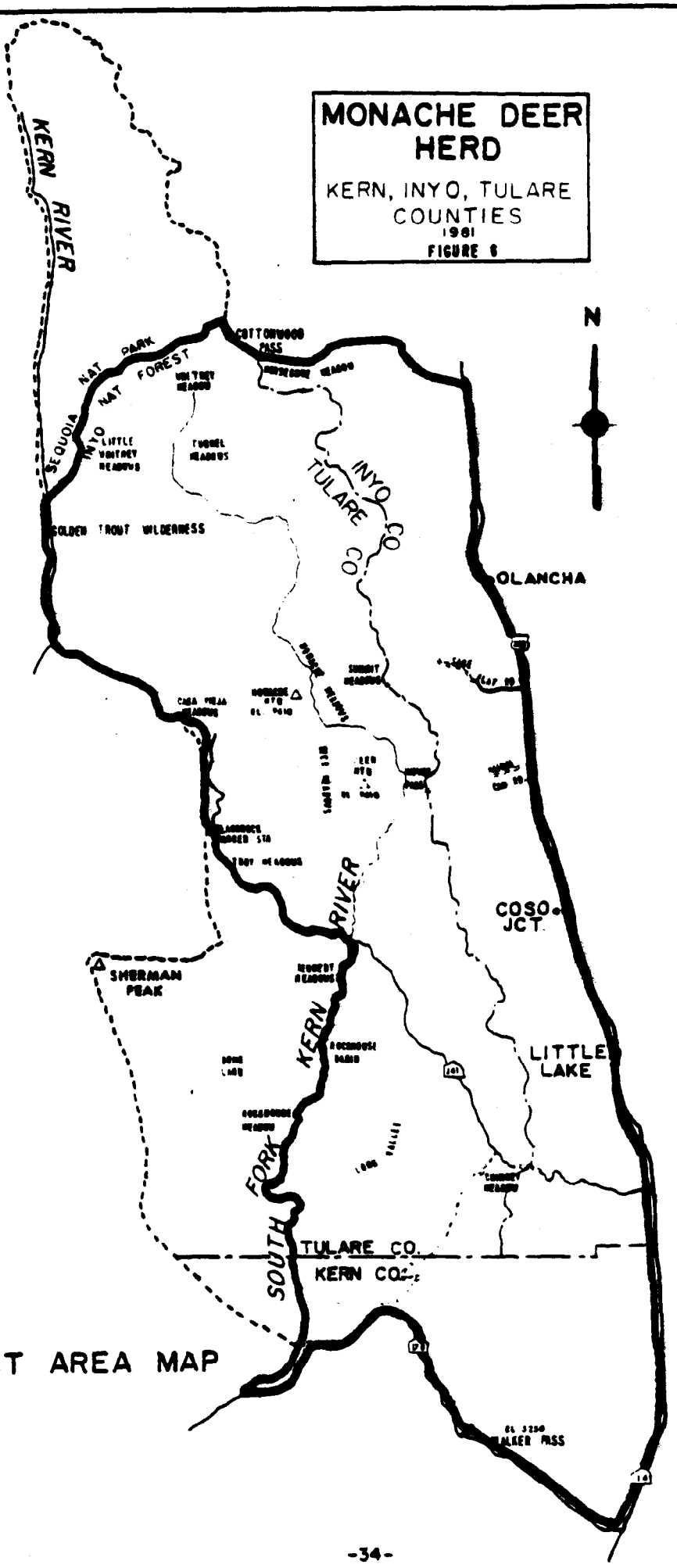
d. To provide a suitable site for non-consumptive use of the herd.

2. Recommended Prescriptions

a. The entire range of the Monache deer herd should be removed from the present D-8 and X-9 hunt zones and designated as a separate zone (Figure 6). This action is a necessary first step in determining actual hunting pressure on the herd and to subsequently control the number of hunters in the Monache Meadow area.

b. A special buck hunt on the Haiwee winter range should be recommended on an annual basis, as long as fall buck ratios are maintained at 25-30 bucks per 100 does or higher. These hunts should be restricted to trophy-size bucks (three points or larger), to be taken during December. A minimum of 50 permits should be available annually on a lottery basis. Maximum permit numbers should be determined on the basis of buck ratios and total deer available each year.

c. The newly designated Monache hunt zone should open for hunting so as to coincide with the openings of zones D-8 and X-9. Closing of the regular season should be no later than October 25, unless hunter quotas are in force. If the more restricted zone area and shorter open season do not effectively reduce hunting pressure by the desired 25 percent, then the open season should be further shortened or hunter quotas should be imposed.



PROPOSED HUNT AREA MAP

4. A site should be selected on the Haiwee winter range for use by non-consumptive users of the herd. A parking area, a vista point, and interpretive signs should be constructed to encourage this type of use and to provide above-average opportunities to see and enjoy deer in their native habitat. A specific area to be considered is along existing roads between Haiwee Canyon and Sage Flat.

E. Mortality Element

The Monache deer herd, like all other wild animal populations, faces various forces that constantly remove animals from the population. In addition to the commonly understood forces such as old age, accidents, legal and illegal hunting, diseases, parasites, and other factors, some deer are undoubtedly lost to predators. Large predators such as coyotes and mountain lions are well known for their tenacity and efficiency in killing deer (Knowlton 1976). The effect of each of these forces on individual animals varies considerably depending on age and condition of the animal, season of the year, weather, population density, and probably of most importance, on the condition of the animal's habitat. Suitability and condition of the habitat is the primary and basic factor that influences total mortality.

There is no substantiating evidence that predators, accidents, buck hunters, or diseases have played major roles in limiting the Monache deer herd population. However, available herd performance data show the primary deer loss to be among fawns, and habitat deficiencies are implicated. Annual herd composition counts provide the best data to document fawn losses, since they reflect comparative fawn losses between reproductive potential and actual recruitment of surviving fawns into the herd.

Earlier studies (Jones 1953) indicated that reproductive potential in the Monache deer herd had averaged about 155 fawns per 100 does. This ratio expresses the number of fawns born per 100 does, and is not indicative of fawn survival after birth. Such productivity is similar to that found today in other west-slope Sierra deer herds (North Kings Deer Study Notes 1978). It can be assumed that a productivity rate of approximately 155 fawns per 100 does still persists in the Monache deer herd. Herd composition data over the past seven years indicate an average ratio of only 38 fawns per 100 does reaching the winter range in December of each year. Based on these data, the average annual fawn loss prior to winter is 76 percent. When added to an average 7 percent loss on the winter range, the total fawn loss has averaged approximately 83 percent. Exactly where, or why such drastic fawn losses occur cannot be ascertained from herd composition data, but they do serve to describe the extent of the annual fawn loss. The fact that approximately 76 percent of the annual fawn crop is apparently lost before they reach the winter range narrows major considerations down to either habitat deficiencies on the summer range, nutritional stress on the does during their last few weeks of pregnancy, or predation.

Studies on the nearby North Kings deer herd indicate that neo-natal fawn losses are often directly related to nutritional stress placed on pregnant does during their last trimester of pregnancy. Relatively short migrational routes for a large segment of the Monache deer herd tend to discount nutritional problems during migration and to implicate either sub-optimal fawning habitat, forage deficiencies on the winter range, or predation.

Herd mortalities from all other factors are insignificant when compared with the substantial fawn loss occurring each year. By simple computation, it can be estimated that there is presently an annual average loss approaching 5,000 fawns from this herd. It is obvious that losses of such magnitude must be mitigated if the herd is to increase in numbers and if herd objectives are to be reached.

1. Mortality Objective

   To reduce existing herd mortality factors that are preventing attainment of herd goals, with emphasis on reducing annual fawn losses.

2. Recommended Prescription

   Initially, prescriptions will be limited to measures designed to improve fawning habitat -- see "Recommended Programs and Prescriptions - Habitat Element."

F. Information Element

1. Information Objective

   To increase the flow of information on the Monache deer herd to the public, and to encourage increased public involvement and awareness of management of the herd.

2. Recommended Prescriptions

   a. Establish a permanent Regional Information Officer position in the Department's Region 4 office. Responsibilities of the Information Officer would include preparation and submission of herd information in periodic press releases.

   b. Department employees should continue to work closely with local academic institutions to provide up-to-date technical deer information to the scholastic community. Seminars on deer management should be scheduled periodically for faculty members and students.

Field trips should also be encouraged for students of ecology, conservation, and wildlife related courses as a means of encouraging involvement by students.

c. Employees of DFG, USFS, and BLM should continue to appear at meetings of local organizations such as Audubon Society, service organizations, and sportsmen's clubs, to take advantage of the opportunities to present information regarding the Monache deer herd.

d. A management plan summary should be developed from this plan for general distribution.

e. An instructional display should be developed concurrently with development of a deer viewing site on the Haiwee winter range. Such display could include photos of all major wildlife species inhabiting the Monache deer range and some life history notes on each species, and would provide an ideal opportunity to distribute copies of a summary management plan on the Monache deer herd.

f. An "action" plan should be developed to follow this plan that would become the working document to identify project priorities, interagency responsibilities, and precise prescriptions for recommended projects.

G. Review Element

1. Review Objectives

To provide for an annual review and update of the management plan.

2. Recommended Prescriptions

a. Interagency meetings between the Department, Inyo National Forest, Sequoia National Forest, and BLM will be held each year between

February 1, and March 31, for the purpose of coordinating necessary updating of the plan.

b. Department of Fish and Game will provide updated material to all official plan recipients (USFS and BLM) within 90 days after the interagency meeting. Extra copies of all updated material will also be available in the Department's Region 4 office in Fresno.

c. Significant management changes that become necessary in future years will continue to be subject to public scrutiny through normal Fish and Game Commission meetings. Changes not requiring Commission approval will be presented to the interested public for their comment and input in a manner to be determined at the time (public meetings, talks to community groups, press releases, etc.).

V. Alternative Management Actions Considered

To accomplish the primary goals set forth in this plan, several alternative courses of action are available to herd and land management agencies. The same holds true when considering prescriptions to solve specific herd problems.

While the preferred goals and prescriptions have been described in detail, the reader cannot assess resource tradeoffs and values, or be assured that other management possibilities were given consideration, unless alternatives are also described and discussed.

Three basic management alternatives that were also considered before adoption of the preferred plan are:

A. Management of the Herd as it Existed in 1980

Under this alternative, the herd would: 1) continue to be segmented into hunt zones D-8 and X-9, with no practical means of determining total numbers of hunters using the herd range, 2) continue to be overhunted in the Monache Meadow area and underhunted in the remainder of the herd range, 3) continue to produce between 150 and 200 bucks during most regular buck-hunting seasons, 4) continue to provide an estimated hunter-success ratio between five and ten percent each year, 5) continue to produce average spring fawn ratios of less than 35 per 100 does, 6) continue to fluctuate between about 5,000 and 7,000 animals, 7) continue to be subject to undue conflicts with livestock, O.R.V.s, and recreationists, 8) continue to produce an annual deer harvest consisting primarily of small-antlered yearling and two-year-old bucks, and 9) continue to be dependent on marginal range benefits from timber operations and wildfires, rather than to receive priorities for specific wildlife habitat improvements. This alternative also conflicts with the statewide strategic plan for deer, legislative mandates under AB-1521, and Fish and Game Commission policies.

B. Management of the Herd to Maximize Habitat Productivity and Deer Utilization on a Sustained Basis

Under this alternative, deer habitat would receive highest priority against all other land uses. Future timber production would be drastically curtailed on USFS lands and this would be contrary to present federal land management policies and directives. The present concept of balanced multiple use of federal lands would be adversely affected.

Livestock grazing allotments would be drastically curtailed or eliminated, and this would also be contrary to federal mandate. USFS, BLM, livestock and mining interests, and ORV enthusiasts, would all be expected to oppose such a management program. The deer population could possibly increase to near historic peak levels (over 10,000 animals), and the hunter harvest of deer could be increased several fold. An annual harvest of antlerless deer (all age classes and both sexes) would eventually be necessary. Public support for such a program may be lacking. The annual surplus of deer would be cropped and older animals would become rare in the population. Habitat improvement programs more intensive than recommended in this plan would be many times more expensive, in terms of both improvement costs and loss of revenue from other resources. Funds and political support are currently unavailable to make this alternative feasible.

C. Management of the Herd on a Sustaining Basis -- No Hunting

Under this alternative, the herd would be managed to assure maintenance of enough animals for continued non-consumptive uses only. Hunting would be discontinued and habitat improvements could not be justified. There would be a brief increase in the deer population, followed by a long-term decline. Range conditions would deteriorate due to overuse by deer and continued high levels of other range uses. The deer herd condition would decline, resulting

in higher levels of so-called natural mortality and poorer fawn production and survival. A highly prized recreational opportunity would be lost, and the local economy would be affected by the loss of revenue from hunters. Current Department policy and legislative mandates conflict with this alternative. Significant statewide pressure is present to insist on some improvement of herd and range conditions, and to continue the hunting program.

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VII. APPENDICES

APPENDIX I

Monache Deer Herd

Fawns and Bucks per 100 Does in

Summer, Fall and Spring Composition Counts

Summer Counts				Fall Counts				Spring Counts		
Year	Fawns/ 100 Does	Bucks/ 100 Does	Sample Size	Year	Fawns/ 100 Does	Bucks/ 100 Does	Sample Size	Year	Fawns/ 100 Does	Sample Size
				1951	58	16	309	1952	12	178
				1952	46	24	422	1953	30	452
				1953	61	20	406	1954	60	218
				1954	62		unk	1955	35	unk
				1955	36		unk	1956	18	unk
				1956	41		unk	1957	33	unk
				1957	48		unk	1958	49	unk
				1958	46		unk	1959	41	unk
				1959	53		unk	1960	36	unk
				1960	19		unk	1961	32	unk
				1961	36		unk	1962	13	unk
				1962	NC			1963	28	unk
				1963	NC			1964	NC	
				1964	NC			1965	NC	
				1965	NC			1966	NC	
				1966	NC			1967	NC	
				1967	NC			1968	NC	
				1968	NC			1969	NC	
				1969	NC			1970	NC	
				1970	NC			1971	NC	
				1971	NC			1972	NC	
				1972	NC			1973	NC	
				1973	NC			1974	NC	
				1974	23	31	153	1975	NC	
				1975	NC			1976	NC	
				1976	29	41	157	1977	NC	
				1977	36	35	186	1978	NC	
				1978	32	26	108	1979	16	424
				1979	59	24	638	1980	38	1034
				1980	50	29	390	1981	39	526
				1981	37	31	104	1982	36	853
1982	59	9	309	1982	43	28	194	1983	38	998
1983	69	49	142	1983	48	29	179	1984	53	1147
1984	49	26	244	1984	41	47	258	1985	36	1466

NC - No count obtained

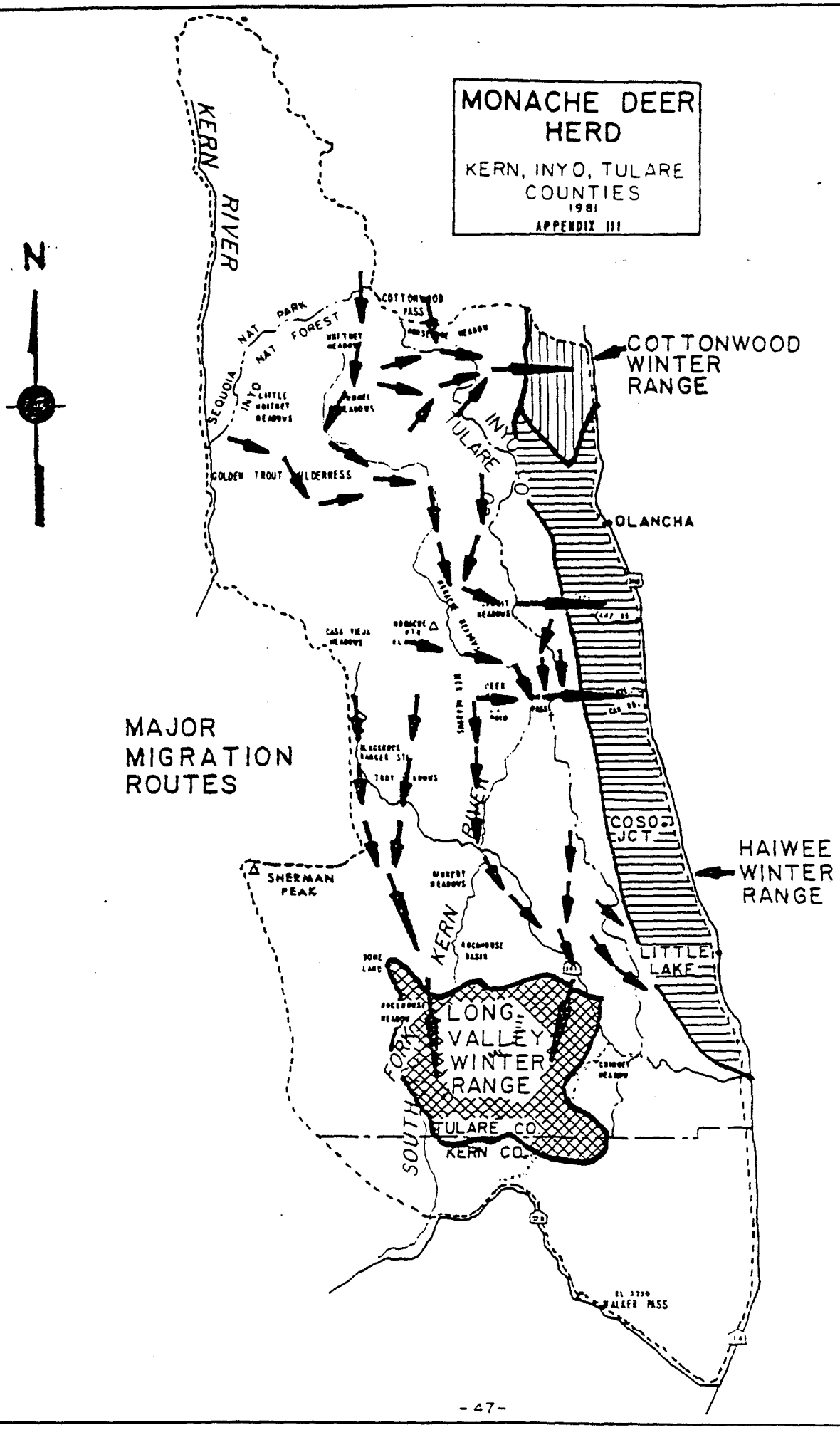
APPENDIX II
Monache Deer Herd
Deer Kill Records

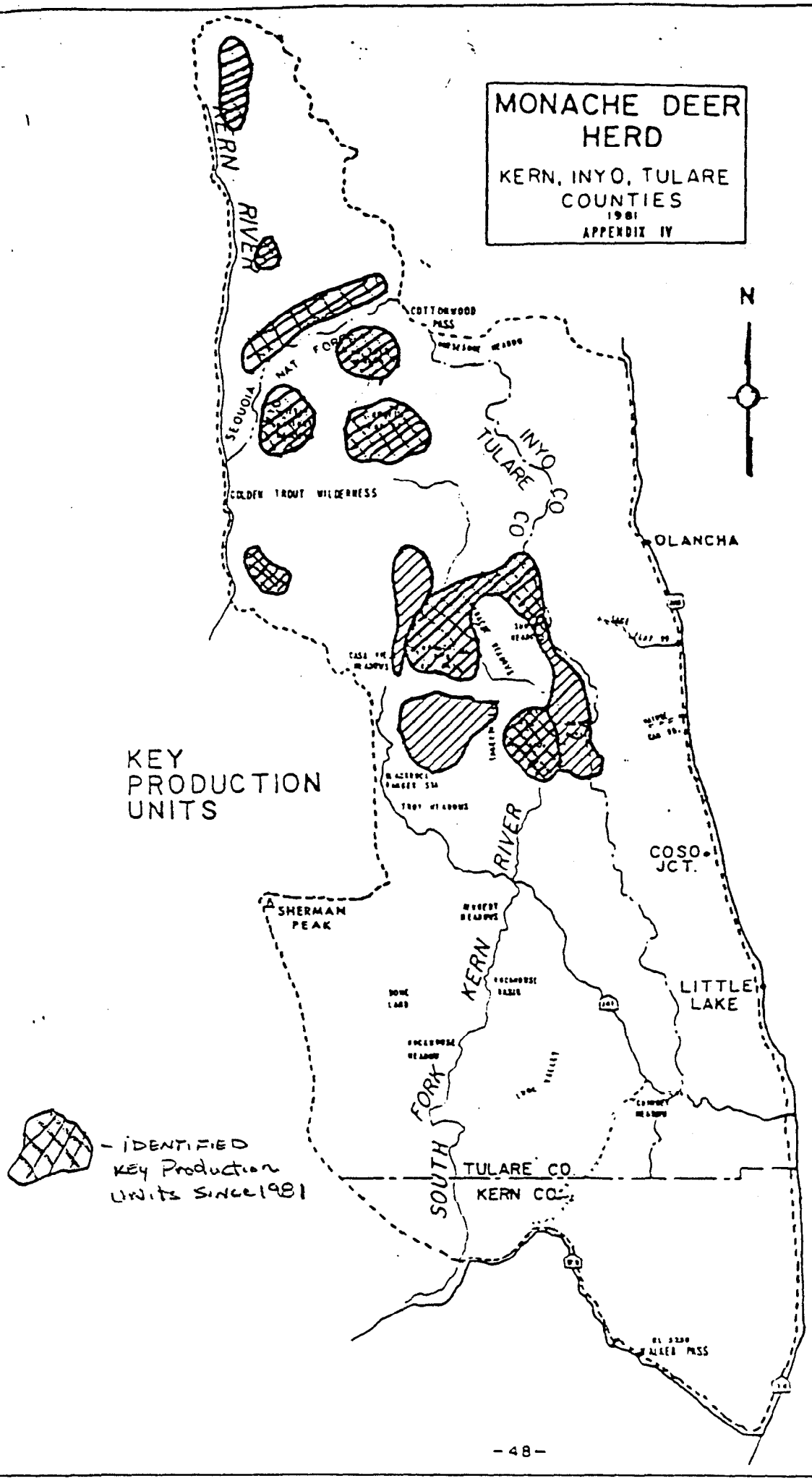
Year	Bucks	Special Antlerless Hunts Permits Sold	Special Antlerless Hunts Deer Killed	Late Season Buck Hunts ***
1950	358*	---	---	---
1951	316*	---	---	---
1952	347*	---	---	---
1953	No Records	---	---	---
1954	No Records	---	---	---
1955	204	---	---	---
1956	120	---	---	---
1957	167	637	209	---
1958	129	753	118	---
1959	266	465	173	---
1960	131	762	183	---
1961	111	769	97	---
1962	78	285	37	---
1963	103	139	26	---
1964	194	290	68	---
1965	99	292	62	---
1966	141	130	38	---
1967	95	137	30	---
1968	140	---	---	---
1969	87	---	---	---
1970	126	---	---	---
1971	134	---	---	---
1972	163	---	---	---
1973	106	---	---	---
1974	114	---	---	---
1975	151	---	---	---
1976	126	---	---	---
1977	188	---	---	---
1978	163	---	---	35
1979	201	Total number	Total number	22
1980	179	of permits	of animals	15
1981	254	sold in 11	taken on	29
1982**	130	years of	special hunts	47
1983	146	special hunts	is 1,041	40
1984	189	is 4,659		52

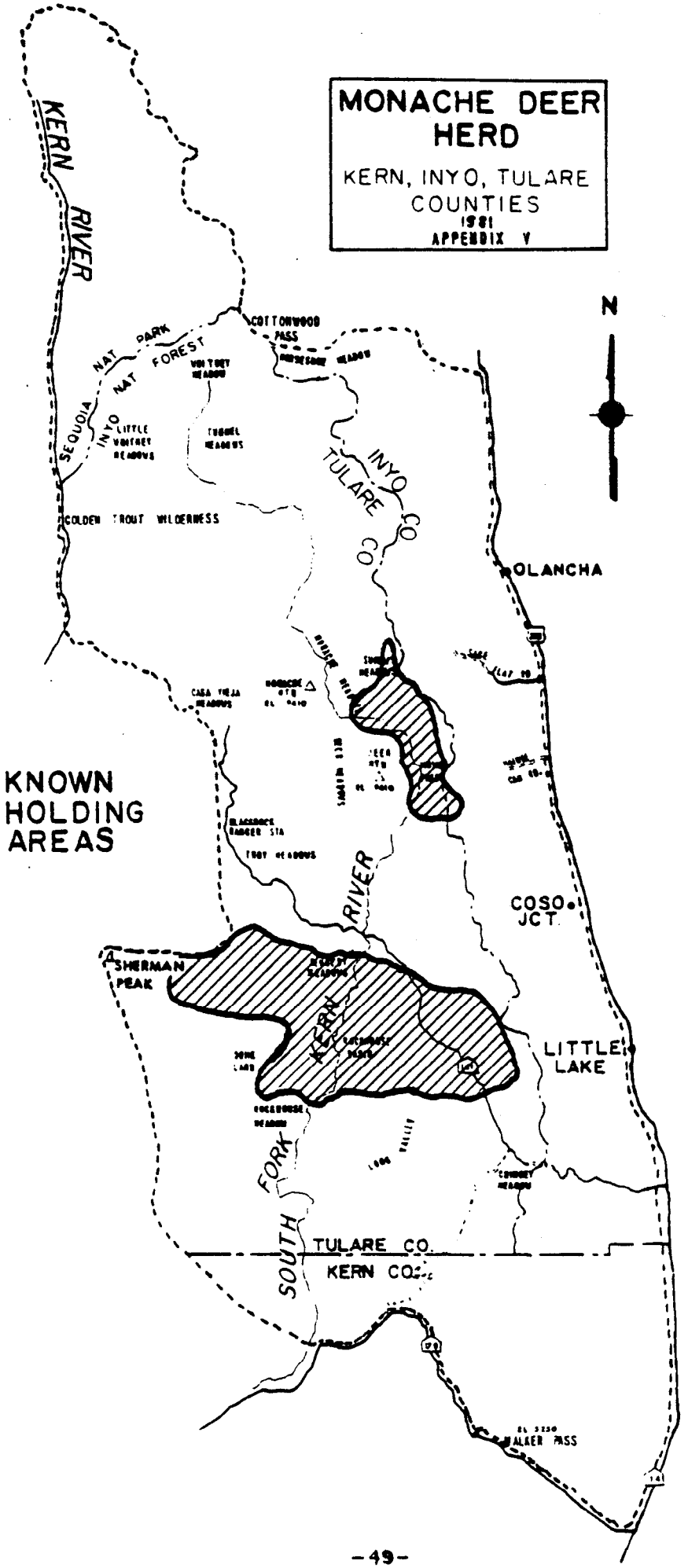
* Buck kill figures from within different herd boundaries, not totally comparable with later figures.

** Quota hunt initiated in herd zone to reduce hunter pressure.

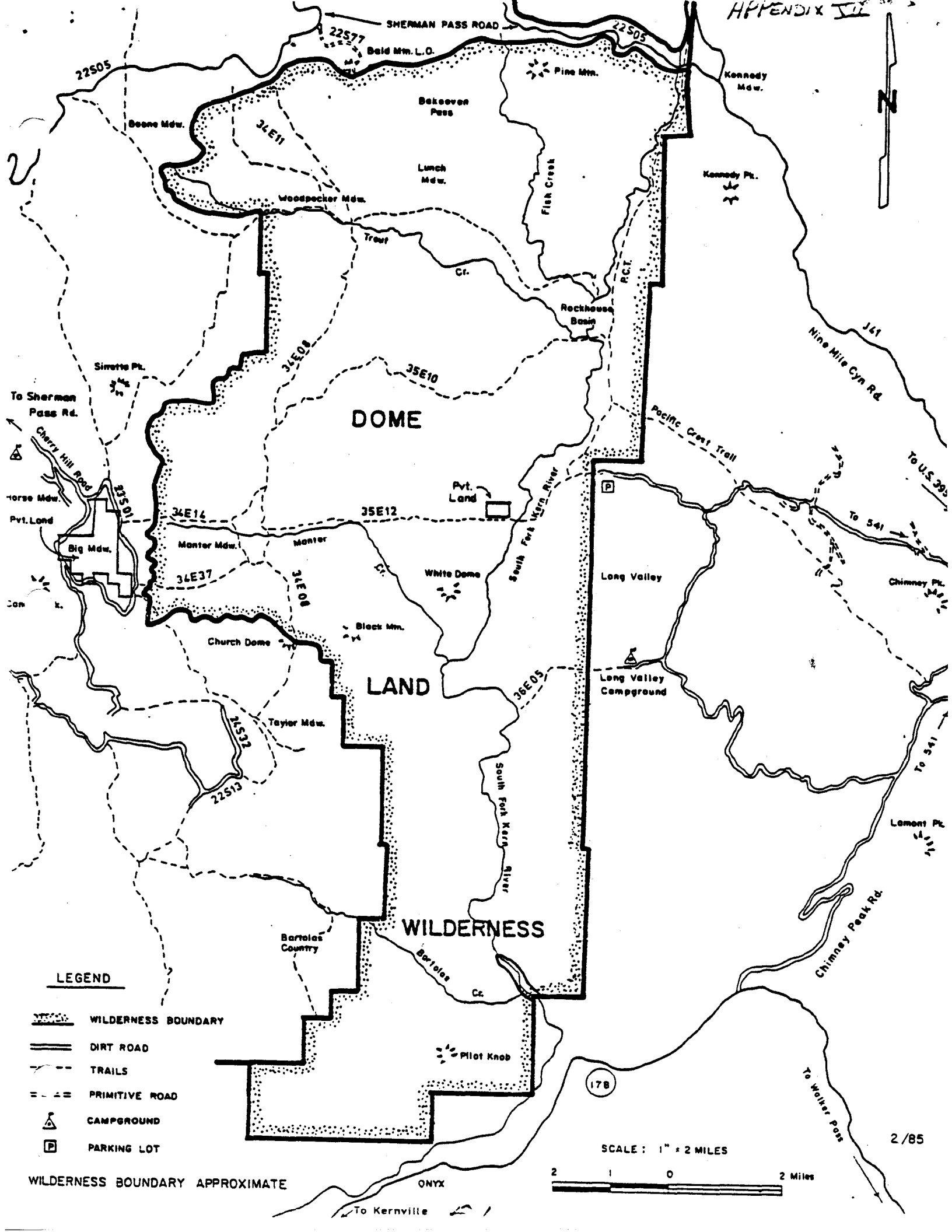
*** 3 point or better hunts; bucks killed included in total kill figures.


MONACHE DEER HERD
KERN, INYO, TULARE COUNTIES
1981
APPENDIX III
N
KERN RIVER
SEQUOIA NAT PARK
INYO NAT FOREST
COTTONWOOD PASS
COTTONWOOD WINTER RANGE
GOLDEN TROUT WILDERNESS
TULARE CO
INYO CO
OLANCHA
MAJOR MIGRATION ROUTES
CASA VIEJA MEADOWS
BLACKROCK RANGER STA
TROY MEADOWS
SHERMAN PEAK
KERN RIVER
COSO JCT
HAIWEE WINTER RANGE
LITTLE LAKE
ROCKHOUSE BASIN
ROCKHOUSE MEADOW
LONG VALLEY WINTER RANGE
SOUTH FORK KERN RIVER
TULARE CO
KERN CO
EL 3730
WALKER PASS

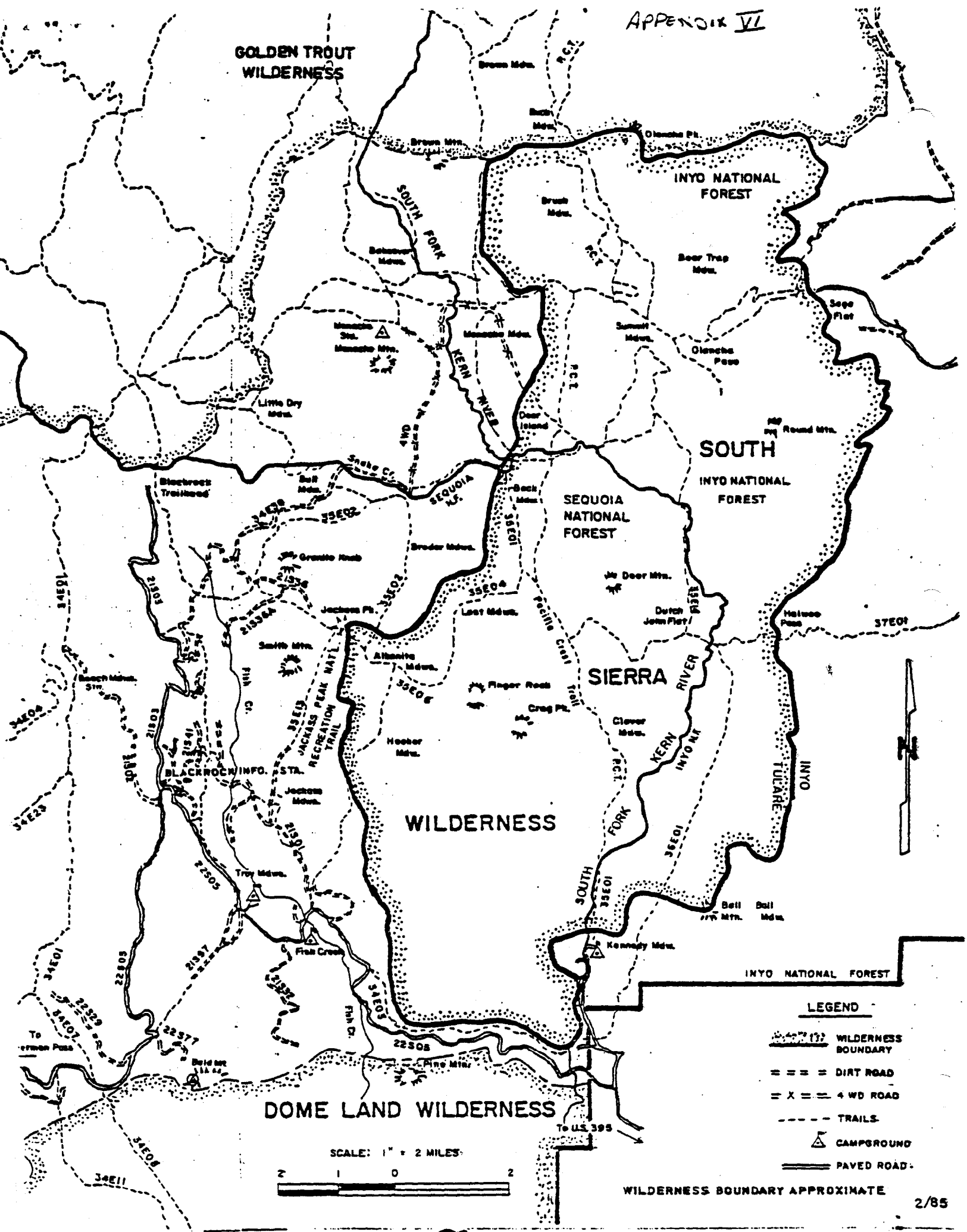

MONACHE DEER HERD
KERN, INYO, TULARE COUNTIES
1981
APPENDIX IV
N
KERN RIVER
COTTONWOOD PASS
SEQUOIA NAT FOREST
GOLDEN TROUT WILDERNESS
INYO CO
TULARE CO
OLANCHA
KEY PRODUCTION UNITS
COSO JCT.
SHERMAN PEAK
KERN RIVER
LITTLE LAKE
SOUTH FORK
TULARE CO.
KERN CO.
- IDENTIFIED KEY Production UNITS SINCE 1981


MONACHE DEER HERD
KERN, INYO, TULARE COUNTIES
1981
APPENDIX V
N
KERN RIVER
SEQUOIA NAT PARK
INYO NAT FOREST
COTTONWOOD PASS
GOLDEN TROUT WILDERNESS
INYO CO
TULARE CO
OLANCHA
KNOWN HOLDING AREAS
SHERMAN PEAK
KERN RIVER
COSO JCT.
LITTLE LAKE
SOUTH FORK
TULARE CO.
KERN CO.
WALKER PASS

APPENDIX II


SHERMAN PASS ROAD
22S77
Bald Mtn. L.O.
22S05
Pine Mtn.
Kennedy Mdw.
Beeson Mdw.
34E11
Beeseven Pass
Lunch Mdw.
Woodpecker Mdw.
Fish Creek
Kennedy Pk.
Trout Cr.
P.C.T.
Rockhouse Basin
J41
Nine Mile Cyn Rd.
Sirretta Pt.
34E08
35E10
DOME
To Sherman Pass Rd.
Cherry Hill Road
Pacific Crest Trail
To U.S. 395
Horse Mdw.
23S01
Pvt. Land
34E14
35E12
Pvt. Land
To 541
Big Mdw.
Monter Mdw.
Monter Cr.
South Fork Kern River
Long Valley
Chimney Pk.
34E37
34E08
White Dome
Black Mtn.
Church Dome
LAND
36E05
Long Valley Campground
Taylor Mdw.
24S32
22S13
To 541
Lamont Pk.
South Fork Kern River
WILDERNESS
Bartolas Country
Bartolas Cr.
Chimney Peak Rd.
Pilot Knob
178
To Walker Pass
ONYX
To Kernville
LEGEND
WILDERNESS BOUNDARY
DIRT ROAD
TRAILS
PRIMITIVE ROAD
CAMPGROUND
PARKING LOT
WILDERNESS BOUNDARY APPROXIMATE
SCALE: 1" = 2 MILES
2 1 0 2 Miles
2/85

APPENDIX VI


GOLDEN TROUT WILDERNESS
INYO NATIONAL FOREST
SOUTH INYO NATIONAL FOREST
SEQUOIA NATIONAL FOREST
SIERRA
WILDERNESS
DOME LAND WILDERNESS
BLACKROCK INFO. STA.
Blackrock Trailhead
Brown Mtn.
Olancha Pk.
Brush Mdw.
Beartrap Mdw.
Sage Flat
Olancha Pass
Summit Mdw.
Round Mtn.
Monache Mtn.
Monache Mdw.
Little Dry Mdw.
Deer Island
Ball Mdw.
Granite Knob
Broder Mdw.
Jackass Flt.
Mt. Deer Mtn.
Dutch John Flat
Halsey Pass
Smith Mtn.
Alabama Mdw.
Finger Rock
Craig Flt.
Hooker Mdw.
Clover Mdw.
Jackass Mdw.
Trail Mdw.
Fish Creek
Fish Cr.
Pine Mtn.
Ball Mtn.
Ball Mdw.
Kennedy Mdw.
To Cannell Pass
To U.S. 395
SOUTH FORK KERN RIVER
KERN RIVER
Pacific Crest Trail
JACKASS PEAK RECREATION TRAIL
SEQUOIA N.F.
INYO NF
TULARE
INYO
SCALE: 1" = 2 MILES
2 1 0 2
LEGEND
WILDERNESS BOUNDARY
DIRT ROAD
4 WD ROAD
TRAILS
CAMPGROUND
PAVED ROAD
WILDERNESS BOUNDARY APPROXIMATE
2/85

Herd Plan Update Through 1985

Greenhorn Herd

TABLE 1

Year	Bucks
1985	164

Section II.A.3
(Herd Composition)

Herd composition counts conducted in the fall of 1985 yielded a ratio of 57 fawns and 37 bucks per 100 does (Sample Size = 145).

Herd Plan Update Through 1985

Monache Herd

APPENDIX I

Summer Counts			
Year	Fawns/ 100 Does	Bucks/ 100 Does	Sample Size
1985	94	33	286

Fall Counts			
Year	Fawns/ 100 Does	Bucks/ 100 Does	Sample Size
1985	51	47	364

Spring Counts		
Year	Fawns/ 100 Does	Sample Size
1986	49	612

APPENDIX II

Year	Bucks	Late Season Buck Hunts***
1985	233	65

Herd Plan Update

Greenhorn Herd

TABLE 1

Year	Bucks
1986	150

Section II.A.3
(Herd Composition)

No herd composition counts were conducted in 1986

Herd Plan Update

Monache Herd

APPENDIX I

Summer Counts				Fall Counts				Spring Counts		
Year	Fawns/ 100 Does	Bucks/ 100 Does	Sample Size	Year	Fawns/ 100 Does	Bucks/ 100 Does	Sample Size	Year	Fawns/ 100 Does	Sample Siz
1986	49	26	244	1986	37	26	171	1987	31	884

APPENDIX II

Year	Bucks	Late Season Buck Hunts
1986	200	22

HERD PLAN UPDATE
GREENHORN HERD

Table 1

Year	Bucks
1986	150
1987	71

Section II.A.3
(Herd Composition)

Year	Bucks per 100 Does	Fawns per 100 Does	Sample
1986/1987	34	57	145
1987/1988	34	42	166

HERD PLAN UPDATE
MONACHE HERD

APPENDIX I

Summer Counts				Fall Counts				Spring Counts		
Year	Fawns 100 Does	Bucks 100 Does	Sample Size	Year	Fawns 100 Does	Bucks 100 Does	Sample Size	Year	Fawns 100 Does	Sample Size
1986	49	26	244	1986	37	26	171	1987	31	884
1987	76	23	231	1987	36	18	262	1988	20	529
				1988	29	32	882			

APPENDIX II

Year	Bucks	Late Season Buck Hunts
1986	200	22
1987	197	19

A. MONACHE DEER HERD PROGRESS REPORT - MARCH 1989

B. HERD SUMMARY

The Monache deer herd contains both California and Inyo mule deer, and their range covers both eastern and western slopes of the Sierra Nevada range in Tulare, Inyo, and Kern Counties. Elevations range from about 3,200 ft. msl along the desert slopes in Inyo County to well over 11,000 ft. msl on the summer ranges in Sequoia National Park.

Deer numbers in this herd were reported to be very low around the turn of the century, largely because of extreme overgrazing by domestic sheep and cattle that denuded much of the herd's summer range. Under USFS jurisdiction, livestock allotments were reduced and timber harvesting operations began; this combination brought about improved range conditions and an increase in deer numbers. The herd population apparently peaked in 1950; soon thereafter, the forces of plant succession, more efficient fire suppression, livestock competition, and perhaps overzealous doe hunt regulations, were responsible for a noticeable long-term decline in the deer population. During the 1970's a reversal of this downward trend became apparent, and a dramatic increase in the population has been evident over the past eight to ten years.

The best known key summer range for this herd is between elevations 6,000 - 8,000 ft. msl, in the Honey-Bee-Summit-Meadow-Brush Meadow area adjacent to Monache Meadows. The herd's major winter range is on the desert slope of the Sierra in Inyo County between Cottonwood Creek and Five Mile Canyon. A small segment of the herd is also known to winter in the Long Valley area in southeastern Tulare County.

There have been no habitat improvement projects specifically for deer anywhere on the Monache deer herd range. The 5,000 acre Clover Fire in 1980 occurred across important fawning, hunting, and migration zones and should enhance habitat and the herd. A total of 42 bucks were killed in the fire area in 1981, compared with an average kill of 12 bucks during the three years preceding the fire.

The management goals for this herd are: 1) to maintain the present long-term upward trend in the herd population, primarily by improving habitat conditions; 2) to maintain a viable and healthy deer herd in balance with range carrying capacities; and 3) to provide maximum public use of the herd for both consumptive and non-consumptive pursuits without jeopardizing herd well-being.

Major actions that must be undertaken to attain these management goals incluced further study, delineation and improvement of key areas of the herd range; increased coordination between Department personnel and agencies controlling the range, with emphasis on providing input into the planning process for critically important aspects of land use such as timber harvest,

livestock grazing, and recreational developments.

C. INVESTIGATIVE ELEMENT

1. Major Problems

a. Although much data has been gathered on this herd through the use of radio-telemetry as to propagation sites, migration routes and holding areas, none of the data were gathered on that portion of the herd that winters in the Rockhouse Basin-Long Valley area.

b. Vegetative data is incomplete and lacking on the Inyo National Forest's portion of the herd's summer range.

c. Non-hunting uses by OHV's, hikers and campers and their effect on herd viability is unknown on both winter and summer ranges.

2. Results of Investigations During the Year.

Herd composition counts were made on the Haiwee winter range and the Monache Meadows summer range. The general lack of deer due to late migrations onto the winter ranges may account for some variations in buck ratios as seen in years where December and January counts are taken.

Herd composition data indicates that a minimum of 37 to 47 bucks per 100 does exist in this herd annually. Winter counts of bucks in this herd is difficult because of the lack of snow at the higher elevations to move a large percentage of bucks onto the winter ranges prior to the counts. The 1985 and 1986 fall counts (both early snow years) indicate a post harvest ratio of 47 bucks per 100 does. The 1988 counts only indicate 19 bucks per 100 does, but, migration onto the winter range did not fully occur until January of that year.

Summer counts done in Monache Meadows each fall indicate an excellent fawn recruitment rate for 1985 and 1987 of 94 and 76 fawns per 100 does respectively. September composition counts made in 1988 indicate that successive years of drought conditions impacts the number of fawns that survive the first few weeks of life.

Extremely dry and hot conditions on the summer range during the counts made it difficult to find deer during the annual horseback trip to assess fawn numbers. The results of the composition counts are listed below:

HAIWEE WINTER RANGE

DATE	BUCKS/100 DOES	FAWNS/100 DOES PRE WINTER	FAWNS/100 DOES POST WINTER	SAMPLE SIZE FALL	SAMPLE SIZE SPRING
12/85	47	51	47	364	612
12/86*	26	37	31	171	884
1/87*	18	36	31	262	884
1/88	32	29	20	882	529
12/88	19	29	21	123	676

* Comparative counts made in December and January

MONACHE MEADOW SUMMER RANGE

Date	Does	Fawns	Bucks	Ratio B/D/F	Sample Size
Sept. 1985	126	118	42	33/100/94	286
Aug. 1986	98	44	47	48/100/45	189
Sept. 1987	116	27	88	23/100/76	231
Sept. 1988	52	29	0	0/100/56	81

During the 1988 hunting season, data was collected on age, weight, and antler development. A total of 1075 permits (500 Period 1, 400 Period 2, 100 Period 3, and 75 Period 4) were issued. Period 1 was September 24 to October 9; Period 2 was October 15 to October 30; Period 3 was November 19 to November 27 (muzzle loading only); and Period 4 was December 3 to December 11 (three point of better). The data collected at opening weekend hunter check stations is shown below>

AGE DATA

Age	Period 1 # Checked %	Period 2 # Checked %	Period 3 # Checked %	Period 4 # Checked %	1987 Total %	1988 Total %
1	0 (00)	0 (0)	0 (0)	0 (0)	2 (4)	0(00)
2	9 (90)	1 (10)	0 (00)	0 (0)	23 (42)	10(29)
3	13 (81)	2 (13)	0 (00)	1 (06)	19 (35)	16(46)
4	2 (40)	1 (20)	0 (00)	2 (40)	7 (13)	5(14)
4+	3 (75)	0 (00)	0 (00)	1 (25)	4 (7)	4(11)
Total	27(77)	4 (11)	0 (00)	4 (11)	55(100)	35(100)

WEIGHT DATA (POUNDS)

Age	Period 1 #	Checked	Period 2 #	Checked	Period 3 #	Checked	Period 4 #	Checked	Seasonal 1988 Avg	Wt	Total 1987 Avg Wt
1	0	(000.0)	0	(000.0)	0	(000.0)	0	(000.0)	0	(000.0)	81.0
2	6	(95.5)	1	(96.0)	0	(000.0)	0	(000.0)	7	(95.8)	93.8
3	10	(110.6)	2	(93.0)	0	(000.0)	1	(113.0)	13	(105.6)	109.4
4	2	(100.5)	1	(130.0)	0	(000.0)	1	(115.0)	4	(115.2)	133.3
4+	2	(127.5)	0	(000.0)	0	(000.0)	1	(130.0)	3	(128.8)	122.9
Unkn	1	(100.0)	0	(000.0)	0	(000.0)	0	(000.0)	1	(100.0)	100.8
Total	21	(106.8)	4	(106.3)	0	(000.0)	3	(119.3)	28	(109.1)	109.3

3. Proposed Studies

   a. Continue winter and spring herd composition counts on major deer concentrations on the Haiwee and Cottonwood winter ranges.

   b. Make fall fawn counts on the Monache Meadows complex.

   c. Establish winter and spring herd composition counts on the Long Valley-Rockhouse Basin winter range.

   d. Continue to delineate areas where potentially productive habitat is being avoided by deer because of human and livestock disturbances.

   e. Continue to locate and map as many fawning sites as possible.

   f. Continue to operate the check station on all hunts for the Monache deer herd.

D. HABITAT ELEMENT

The overall long-term condition of the Monache deer herd range is fair, with a downward trend, due to a general lack of natural disturbances in vegetation characteristics. Rainfall and snow to date (April 1989) has been well below normal levels, with water content of the snowpack well below normal. Early warming trends should provide ample early forage for migrating deer, but late season quality may be lacking.

Specific problems that must be overcome to improve overall range conditions are:

1. In cooperation with USFS, livestock utilization levels in riparian areas need to be monitored, and any over-utilization areas identified for treatment.

2. The road and trail system in the Monache Meadows complex

needs to be mapped and analyzed. Recommendations for permanent and temporary closures will be submitted to USFS.

3. The Long Valley winter range area will be mapped by vegetation type, and areas will be recommended for vegetative manipulation to improve forage conditions for deer.

4. Areas within wilderness need to be mapped for "wilderness burning" designation to improve habitat.

E. MORTALITY CONTROL ELEMENT

The only known mortality element of consequence affecting the Monache deer herd are hunting, illegal poaching and predators. It must also be assumed that disease, accidents, and parasites take an undetermined number of deer each year, but these losses are not considered significant.

The removal of deer each year by hunting is further discussed under the Utilization Element of this plan. Illegal poaching is further discussed under the Law Enforcement Element.

Primary predators known to take deer or this range are lions and coyotes. Bobcats, eagles, and bear may also be involved, but to a lesser degree. It is presently unknown whether predation is a limiting factor in the Monache herd.

Predatory animal control is not recommended until such time as further studies can be made to determine the extent of losses and the effect of such losses on herd viability.

Studies Proposed:

1. Investigate vegetative composition and nutritional levels of the vegetation on the herd's winter and summer ranges.

F. LAW ENFORCEMENT ELEMENT

Illegal poaching is known to occur, particularly on the more vulnerable winter ranges, but the extent of this activity is presently unknown. Law enforcement personnel believe that the annual loss to poaching may equal the legal hunter harvest of 150 to 200 deer. Little can be done to reduce this illegal take without additional funds to increase enforcement efforts. Even then, it may not be possible to effect a significant reduction in poaching activities. There is also a known loss of yearling bucks and does that are taken by hunters each year on the summer range incidental to legal buck hunting. Management changes in the form of quota hunts on the herd seem to have reduced this number of illegally taken animals.

Actions Proposed:

1. Increase the number of wardens assigned to the Monache Meadows area on all weekends of the annual deer season.

2. Arrange with USFS for additional patrols in Monache Meadows during the hunting season.

3. Arrange with USFS and wardens for additional patrol time on winter range concentration areas.

G. UTILIZATION ELEMENT

The 1988 deer season for the X-10 zone corresponded to the same time frame as for the 1987 season. The most significant change occured in quota numbers. Increases in tag numbers for periods 1, 2, and 3 were seen (100, 100 and 25 respectively).

Extremely dry conditions exhisted for both period one and two. These conditions impacted hunting success during period 2 by reducing migration into accessable areas. Period 3 hunters were also affected by dry weather on the Haiwee winter range by the lack of migration to the lower elevations. Period 4 hunters had some snow, but the lack of sufficient quantities to move many deer onto the Haiwee winter range. Most of the deer taken during the period 3 and 4 hunts came from the Long Valley-Rockhouse Basin winter ranges.

The buck kill during these four periods are shown below:

MONACHE DEER HERD
(Kern, Tulare and Inyo Counties)

Year	Kill	# Tags Sold	% Success
1979	201	Unknown	--
1980	181	Unknown	--
1981	254	1572	16.15%
1982	130	650	20.00%
1983	146	650	22.46%
1984	189	700	27.00%
1985	234	700	33.43%
1986	200	850	23.53%
1987	197	850	23.18%
1988	175	1075	16.28%

Ten Year Average - 190.7

A breakdown of the period of use during the seasons are listed below:

	1988 Kill	1988 % Kill		1987 Kill	1987 % Kill
Period 1: 9/26-10/11	85	48%	Period 1: 9/26-10/11	71	36%
Period 2: 10/17-11/1	43	25%	Period 2: 10/17-11/1	87	44%
Period 3: 11/21-11/29	14	8%	Period 3: 11/21-11/29	18	9%
Period 4: 12/5-12/13	29	17%	Period 4: 12/5-12/13	19	10%
Archery	4	2%	Archery	2	1%
Total	175	100%		197	100%

The success rates for each of the four hunt periods is listed below:

Date	Permits Issued	Buck Kill	% Success
Period 1 9/24-10/9	500	89	17.80%
Period 2 10/15-10/30	400	43	10.75%
Period 3 11/19-11/27	100	14	14.00%
Period 4 12/3-12/11	75	29	38.67%

Also gathered over the seasons was a record of antler development within the kill. This data was broken down into time periods to possibly indicate a correlation with age. The following is a breakdown of this data:

Overall Antler Development/Period of Kill
(Points) 1988

Time	2	(%)	3	(%)	4	(%)	5	(%)	Unkn	(%)	Total	(%)
Period 1	56	(63)	22	(25)	7	(08)	0	(00)	4	(04)	89	(51)
Period 2	29	(67)	7	(16)	6	(14)	0	(00)	1	(02)	43	(25)
Period 3	6	(42)	3	(25)	4	(25)	1	(08)	0	(00)	14	(08)
Period 4	0	(00)	18	(62)	10	(35)	1	(03)	0	(00)	29	(16)
Total	91	(52)	50	(29)	27	(15)	2	(01)	5	(03)	174	(100)

Antler Development vs. Age
Check Station Data
Points

Age	2	(%)	3	(%)	4	(%)	5	(%)	Total	(%)	Total	(%)
1	0	(000)	0	(000)	0	(000)	0	(000)	0	(000)	6	(12)
2	9	(90)	1	(10)	0	(000)	0	(000)	10	(29)	12	(24)
3	11	(69)	4	(25)	1	(6)	0	(000)	16	(46)	18	(36)
4	0	(000)	2	(40)	3	(60)	0	(000)	5	(14)	8	(16)
4+	0	(000)	3	(75)	1	(25)	0	(000)	4	(11)	6	(12)
Total	20	(57)	10	(29)	4	(11)	0	(000)	35	(100)	50	(100)

Management Problems

1. Conflicts with development opportunities (i.e. roads and trails) could seriously affect herd production in important summer ranges.

2. Continued drought conditions could affect herd production and thus harvest levels.

Actions Proposed to Solve Management Problems

1. Inform the public on plans for development that would have negative impacts on the Monache deer herd.

2. Coordinate with USFS and BLM on trail head sites, trail locations, camping areas and concentration points.

3. Inform the hunting segment as to hunting conditions and general locations of deer during the hunting seasons.

H. MANAGEMENT CONCLUSIONS

Presently the Monache deer herd could be considered in a healthy

condition, with an increasing population status. Survival of fawns in this herd is directly related to weather conditions, during the spring, on the winter ranges. Critical nutrition on the winter ranges for does is needed to maintain fawn health during the last trimester of pregnancy. Less than optimal conditions exist on portions of the summer ranges. Ongoing investigations indicate a higher fawn survival rate on the Monache Meadows portion of the summer range than on either the Golden Trout Wilderness or in the Sequoia National Park. Continued investigations into the causes of this decline are needed.

Deer numbers in the Long Valley portion of the herd's winter range continue to be sub-optimal. Mountain lion studies in this area indicate high concentrations of lions, and may be one of the factors keeping deer numbers at low levels.

Continued drought conditions in the herd's range appear to be impacting fawn production over the last two years and could impact hunter success during the preceeding years. Continued dry conditions may require the reduction in hunting pressure to maintain herd viability.

As more data is gathered on the habits of this herd, more intensive management practices could be initiated. Continued coordination between the managing agencies is needed to supply and upgrade information on the herd. The cooperation of all agencies concerned will produce the best benefits for the herd and provide the best opportunities of use of the herd by the public.

1989 Deer Herd Management Plan Update

Deer Herd: Monache deer herd

County: Eastern Kern and Tulare Counties and Southwestern Inyo County.

A. Description of the Deer Herd Management Unit

The Monache deer herd is located in eastern Kern and Tulare Counties and the extreme southwestern portion of Inyo County. Deer that inhabit this range are primarily Inyo mule deer (Odocoileus hemionus inyoensis). Evidence base on metatarsal measurements taken at a hunter check station in 1980, indicates that California mule deer (O. h. californicus) also intermingle on a common summer range.

The Monache deer herd range encompasses approximately 607,900 acres (950 square miles). The range is dominated by the rugged crest of the Sierra Nevada Mountains which bisects the area in a north-south direction. Elevations range from above 12,000 ft. m.s.l. along the Sierra crest in the Sequoia National Park, to 4,000 ft. m.s.l. along the desert slopes in southwestern Inyo County. The western and central portions of the range include the Kern Plateau, while the eastern portion is dominated by a steep escarpment.

Radio telemetry data indicates that the northern herd boundary extends into the Sequoia National Park and runs as far north as the headwaters of Tyndall Creek, just short of the Kings Canyon National Park. At least one deer that wintered on the Hatwee winter range had a summer fawning site on the west side of the Kern River, extending the herd's range in that direction. Little is known about the magnitude of deer use on this portion of the summer range.

The range of the Monache deer herd is best described in terms of various seasonal components that make up the range as a whole. These components include summer, winter and intermediate ranges. Each of these components can be further divided and described according to their specific use by deer (i.e., fawning areas, migration corridors, and holding areas). Each contains habitat essential to their purpose, and because each serves a separate function, they must be considered as key habitat elements necessary for herd viability.

Summer Range:

Summer range describes all areas where Monache deer spend their summer months; an estimated 435,000 acres (71 percent of the range) are in this category. However, based on deer tag returns and field observations of deer use, the better summer range is

restricted to less than ten percent of this total, mainly the Monache Meadows area.

Summer range vegetation can generally be described as ranging from a sagebrush/bitterbrush type under an open Jeffrey pine-juniper canopy in the lower elevations, to an increasing predominance of conifers as elevations increase on the northern end of the Kern plateau. Scattered throughout the range are an above-average number of meadows ranging in size from a few hundred square feet to several hundred acres such as Monache Meadows.

Fawning Areas:

Within the summer range boundary are highly specific areas of importance such as fawning areas. Fawning areas are those sites on the summer range where does give birth to fawns. However, all fawning areas do not contain adequate habitat to assure survival of newborn fawns. In many cases, sub-optimum habitat, territorial dominance by other does, human disturbances, or other factors, cause does to give birth in sub-optimum areas. Fawn survival is generally low in such areas.

Studies have shown that a minimum of seven to ten acres containing a combination of open water, dense vegetation for concealment and a supply of succulent nutritious forage are the basic requirements for an optimum fawning site (Holl, 1974). This combination of food, water, and cover is most often found associated with small meadows and riparian zones.

Holding Areas:

Holding areas on the summer range are used as delay sites during both spring and fall migrations. Deer using these areas arrive about mid-May and remain until winter snows allow passage to key fawning sites. Fall movements onto these areas begins with the first snows of the year and continues until sufficient snows make foraging difficult. Dense protective cover and a plentiful supply of nutritious forage are critical components of a good holding area. Ideally, 40 percent of a holding area should be in dense vegetation to provide thermal cover and concealment (North Kings Notes, 1979).

Intermediate Range:

Intermediate range is a rather limited area between normal summer and winter ranges, and its primary use is during migration. Along both upper and lower fringes of this range, fall and spring holding areas may occur.

Vegetation limitations, including a lack of preferred browse plants beneath closed canopies of trees, are often the primary

reasons that deer migrate quickly through their intermediate range rather than use is as a summer range. The Monache herd range is unique in that only a very small percentage of the total range is in this category.

Winter Range:

Winter ranges of the Monache deer herd are located at elevations between about 4,000 feet and 7,500 feet. Three distinct ranges of the herd are known to exist, these are identified as the Haiwee, Cottonwood, and the Long Valley winter ranges.

The Haiwee winter range is by far the more important in terms of supporting the most deer, followed by Cottonwood and then Long Valley. During the winter months of December through Febuary, the deer feed mainly on browse, such as bitterbrush and sagebrush, occurring on mid-elevation north slopes. Spring rains generally cause early forb growth on the valley floor, usually in early March. This area then becomes an important feeding area for pregnant does prior to migration.

Early studies (Jones, 1953) considered the Long Valley area to be the most important winter range of the herd. However, since that time the number of deer wintering in Long Valley has declined to the point that deer are relatively scarce and not easily seen.

1. **Herd Condition - (please cite source of data or information)**

   Overall, the herd is in what condition? (circle one)

   Very Good

   a. **Discuss individual animal condition (fat indices of does or yearlings, body weights, etc.)**

      A total of 341 adult bucks have been weighed (hog-dressed weight) and aged since 1980 at hunter check stations. Aging was completed by dental eruption methods commonly used to age deer, and randomly checked through cementum aging for the first couple years (Giles, 1969). All deer estimated to be over four years were lumped into a 4+ category due to the difficulty of accurately aging older animals.

      Weights were taken of deer presented at opening and closing weekends of the hunting seasons. An average of 18 pounds was added to deer that were skinned, headless, and without lower legs (Rue, 1979).

      Depending on the accuracy of the ages taken, average weights for age classes of these deer were determined. Age groups, since the deer are born between June and

August of the previous year, are actually represented as being 1/2 year older than the actual listing. Below is the summary of the data collected since 1980.

MONACHE DEER HERD
HUNTER CHECK STATION DATA
AVERAGE FIELD DRESSED WEIGHTS (lbs)

AGE	NO. CHECKED	TOTAL WEIGHT(lbs)	AVG WEIGHT(lbs)
1	57	4539	79.63
2	100	9483	94.83
3	107	11842	110.67
4	38	4726	124.37
4+	39	4922	126.21
Total	341	35516	104.15

Comparisons with the overall averages for the individual years were made. Yearlings ranged from an average low of 77.19 pounds to a high of 83.31 pounds. Two-year-olds varied from an average of 90.71 pounds to 98.20 pounds. Three-year-olds from 103.00 pounds to 114.63 pounds. Four-year-olds from 111.00 to 133.00 pounds and older than four from 115.13 to 138.67 pounds.

Individual variations in weight are mostly dependent on habitat quality and quantity. Yearlings may also vary in weights because of differences in the month born. Differences in weights of the over four category are dependent on the age of the individual animals. Once an animal reaches old-age physical condition declines and weight gain is less.

b. Discuss herd health (fawn survival rates, age structure of antlerless segment of herd, etc.)

Herd composition data have been collected sporadically since 1951. A mean fall ratio of 43 fawns:100 does indicates poor fawn survival prior to fall migration, since reproduction potential should approach 155 fetuses:100 does (Jones, 1953). Spring fawn ratios averaged 30 fawns:100 does during the period 1975 to 1979. From 1979 to 1986 the mean fawn ratio averaged 47 fawns:100 does in the fall and 38 fawns:100 does in the spring. Summer range fawn counts conducted in the Monache Meadows area each fall since 1982 indicates that an average of 68 fawns:100 does are being raised

on this segment of the herd's range. This would indicate that some portions of the summer range are producing less than an optimum number of fawns, with lower figures for fawns occurring when the entire herd reaches the common winter range three months later.

These data generally indicates that poor fawn recruitment appears to be a major intrinsic factor limiting the Monache herd. However, recent studies on southwestern deer herds in similar arid regions (Short, 1979) indicate that low fawn production may be normal on this type of range and that longevity of adults does may be the deciding factor in herd viability.

2. **Population Size - change in number of deer since completion of herd plan, change in population in last 30 years (please reference the method used to estimate deer numbers)**

Longhurst et. al. (1952) estimated that approximately 14,000 deer inhabited the Monache herd range annually during the period 1947-49. However, this estimate was derived for an area roughly 50 percent larger than the herd unit is now. Another estimate of the average population size for the period 1955-79 was derived using a ratio-estimation method described by Anderson et al. (1974). This method produced an estimate of 6,360 deer. Using 1979 herd composition and harvest data in yet another method described by Craig and Ashcraft (1976), an estimated herd size of 7,357 was obtained.

The Monache deer herd is somewhat unique as the signs of a serious decline appeared as early as 1956. In addition, the downward population trend appears to have reversed by 1970, when most other herds in California had either stabilized at low levels or were continuing downward. A lack of specific deer population data limits confidence in estimating the exact timing and magnitude of these fluctuations. The present herd population is estimated to number between 7,000 and 8,000 animals and is believed to be increasing.

3. **Herd Statistics - please list data since completion of deer herd plan**

	Harvest		Fall		Spring
Year	Bucks	Antlerless	Bucks	Fawns	Fawns
1980	181	0	29	50	38
1981	254	0	31	37	39
1982	130 *	0	28	43	36
1983	146	0	29	48	38
1984	184	0	47	41	53

1985	233	0	47	51	36
1986	201	0	26	37	49
1987	197	0	32	29	31
1988	175	0	19 **	29	20
1989					21

* Start of quota hunt. Reduction of tags from over 1572 to 650.

** Sample size of less than 150 animals.

SUMMER COUNTS

Year	Fawns/ 100 Does	Bucks/ 100 Does	Sample Size
1982	59	9	309
1983	69	49	142
1984	49	26	244
1985	94	33	286
1986	49	26	244
1987	76	23	231
1988	56	0	81
1989	80	6	153

4. Deer Hunting

a. Past and current hunting strategies' effects on:

1. deer numbers

The reported hunting harvest of deer herd has been consistently recorded since 1955. The general trend involves a peak in the reported harvest during the period 1947-52, followed by a general decline through the late 1960's. A general increase in buck take is evident since 1970, but this must be tempered with the knowledge that hunter access improved significantly during this same period. The average annual reported harvest for the period 1955-74 is 135 bucks. More recently (1975-85), the reported harvest has increased to an average of 178 animals.

Since 1981 hunter numbers have been lowered through a quota type hunt to reduce hunting pressure in the Monache Meadows area, that tended to remove large numbers of younger animals (70-80 percent yearlings and two-year-olds). Over 1500 permits were issued for the 1981 season, with an estimated 1000 hunters in the Monache Meadows area on opening weekend (based on car count data).

Initial reductions in harvest levels have been seen, but current trends have improved, along with hunter success. The 1985 season produced the third highest harvest of bucks (233) since the 1955 season, with an average of 181 bucks taken since the quota hunts began. The last five years have stabilized despite drought conditions for three of the five years at 198 animals taken.

A total of 1, 041 antlerless deer were harvested on the Monache unit during the period 1956-67. The numbers of permits sold annually varied from a high of 769 in 1961, to a low of 30 in 1966. Most of the animals were harvested during the migration within the Kennedy Meadows-Nine Mile Canyon area, possibly accounting for the reduced numbers of animals in the Long Valley winter range segment.

2. **herd composition**

Hunting demands on the Monache deer herd remain high despite the effective quota system established in 1982. The response to the quota type of hunting system on the deer herd can be seen in the composition count data. Both the 1984 and 1985 counts indicated a post season buck ratio of 47 bucks per 100 does and a hunter success rate of slightly less than 33 percent. Hunter permits have been increased gradually from 650 in 1982 to 1075 in 1989, with buck ratios remaining over 35 bucks per 100 does.

3. **herd health**

During the 1980, 1981 and 1982 seasons, hunter check station data indicated the 72%, 62%, and 71% of the total bucks harvested were under three-years old, and over 80% of the bucks taken were forked-horns.

Since the reduction of hunting pressure with the initiation of the quota system, despite a tag increase of 60% and additional hunt periods, buck ratios have increased to over 47 bucks per 100 does, and the 1986, 1987, and 1988 check station data indicates a wider range of age classed in the harvest (35%, 41%, and 29% respectively, under the age of three years), and nearly 50% of the deer taken were three-point or better bucks.

b. **Future and proposed hunting strategies' effects on:**

1. **deer numbers**

As this deer herd reaches carrying capacity of its ranges, reductions in herd numbers must be considered. Both reductions in does and bucks in the herd may be required. Considerations for both timing and herd segmentations, harvest methods must be accomplished so that no one segment of the herd takes the brunt of the harvest.

Herd plan goals that would maintain herd numbers at an annual spring population of between 8,000 and 9,000 animals and support an annual reported harvest of 300 to 350 bucks would be maintained through increasing habitat capabilities, improved fawn ratios, and maintaining high buck to doe ratios.

2. **herd composition**

Herd plan goals call for a spring fawn ratio to be improved and maintained at a minimum of 45 fawns per 100 does during cycles when the herd population is lower than usual, to assure an adequate annual recruitment and a fawn ratio of a minimum of 30 to 35 fawns per 100 does during high population cycles.

Post season buck ratios should be maintained at a minimum of 30-35 bucks per 100 does to maintain exceptionally high quality hunting conditions. Also, maintain an exceptional quality type hunting system that provides an excess number of bucks in the herd, so that accessible areas have sufficient animals present during the hunting season.

3. **herd health**

Herd health could be maintained by evaluating land-use priorities and range conditions to assure enough quality habitat to permanently support a spring population of 8,000 to 9,000 animals.

5. **Illegal Harvest**

There is no substantiating evidence that predators, accidents, buck hunters, or disease have played a major role in limiting the Monache deer herd during the last ten years.

6. **Other**

B. Non-human Effects on Deer

1. Weather

a. drought

Herd data indicates that the Monache deer herd is well adapted to contend with fluctuating weather patterns. With the herd living in close proximity to the desert, drought conditions vary from year-to-year. The herd has adapted to these drought conditions by having reduced fawn survival during poor years and high fawn survival during good years.

Recent trends over the past three years of drought have seen fewer fawns being recruited into the herd. Over the past 10 years, the herd trend has been upward. The key component to fawn survival appears to be spring rains on the winter ranges, that provide abundant forage for pregnant does just prior to migration.

b. early storms

According to telemetry data gathered from 1980-84, early winter weather tends to start migration to lower elevations earlier than usual (early November). The impacts of deer harvest is dependent on timing. Both of the later season hunts (November and December) are quota hunts (100 and 75 permits respectively) and allow for limited numbers of animals to be harvested. Each hunt has an additional limiting factor, the first hunt is muzzle loading only, and the later hunt is three-point or better. Each hunt is improved with early migration, but neither is felt to impact herd numbers, as can be seen in the fall buck ratios. Both of these hunts are also controlled by a minimum fall buck ratio of 25 bucks per 100 does.

c. mild winters

Mild winters find animals remaining in the higher elevations where feed conditions are favorable. Generally hunting access has been restricted to these elevations, and a reduction in harvest is seen, especially during the November and December hunts.

2. Predators

Large predators such as coyotes and mountain lions are well known for their tenacity and efficiency in killing deer (Knowlton, 1976). The effect of each of these forces on

individual animals varies considerably depending on age and condition of the animal, season of the year, weather, population density, and probably of most importance, on the condition of the animal's habitat. Suitability and condition of the habitat is the primary and basic factor that influences total mortality.

3. Disease and Parasitism

The suitability and condition of habitat is influenced by the total magnitude of mortality. The Monache deer herd faces these various forces that constantly removes animals from the population. It is suspected that habitat deficiencies are a primary cause in reducing populations. No known disease has been apparent in recent history.

C. Effects of Current Deer Hunting and Proposed Hunting Strategies - (discuss the current and proposed deer hunting season regarding the following)

1. Effect Upon Species of Special Concern

Numerous species of special concern occur within the range of the Monache deer herd. All known populations are listed with the Natural Diversity Data Base. Possibly the most effected by hunting would be the Sierra Nevada red fox and the wolverine, although neither have been reported by hunters as being sighted.

Little impact to sensitive species is expected during the hunting seasons as most are few in number and leary of mans presence. The possibility of incidental take of one or more of these species seems unlikely. Possible damage to plant species from camping, off-highway vehicles, livestock used for hunting, or hiking may occur.

a. Changes in local populations

It is unexpected that any changes due to hunting activities would occur. Most travel routes have long been established and new impacts would be unlikely.

b. Changes in regional and statewide populations

It is unexpected that any changes due to hunting activities would occur. Most travel routes have long been established and new impacts would be unlikely.

2. Effects Upon Other Wildlife Species

Numerous other wildlife species such as grouse, bear, quail and rabbits occur throughout the Monache deer herd range.

Chance encounters by hunters may harvest few species during the deer seasons. All of the named species are controlled by hunting regulations and seasons.

a. Changes in local populations

It is expected that little change in local populations of harvest species would occur as a result of deer seasons.

b. Changes in regional and statewide populations

No changes are anticipated.

c. Changes in health, condition and age class structure of populations

No changes are anticipated.

d. Changes in mortality factors

No changes are anticipated.

3. Changes in Public Use/Recreation

Access into the Kern Plateau areas was limited to the Nine Mile Canyon Road and the Trail Peak Road until 1960. These roads covered only about 21 miles and did not extend into the better summer range areas in Monache Meadows. In 1960, an access road from Highway 178 to Chimney Peak was constructed and the Sherman Pass Road was completed in the late 1960's. These four main access roads now connect to a network of high standard logging roads covering approximately 150 miles that can be traveled by conventional vehicles. An additional 174 miles of four-wheel-drive roads and trails penetrate the area. It is estimated that construction of roads and has increased vehicular use of the summer ranges of the Monache deer herd 100 percent since 1960.

Continuous pressure from OHV user groups, campers, and hikers have continued to increase pressure to develop new trails, roads and campgrounds along critical migration routes, summer fawning areas, and riparian areas. Loss of critical habitat remains a problem despite efforts to reduce impacts and the establishment of wilderness areas.

a. Hunting

Due to the initiation of the quota hunt system, wilderness additions, and the initiation of multiple hunt periods, hunting strategies have been altered

considerably. Hunters utilizing the wilderness areas have either learned to hike long distances, or acquired horses to hunt the later seasons, in the higher elevations. Limitations of the accessible areas have improved hunting success because of the removal of vehicles.

b. Nonconsumptive

Nonconsumptive uses of the herd have been improved because of the quota system has allowed for larger numbers of animals, especially bucks, to be retained in the herd. A site for the public viewing of the herd will be established on the herd's Haiwee winter range.

c. Nonhunting

No anticipated impacts.

4. Effects Upon Human Populations

a. Housing

The impacts on housing on private lands within the herd's range falls mainly in the Kennedy Meadows area, where summer cabins occur, and a few private inholdings within the Monache Meadows area. The Tulare County Planning Department has augmented procedures to reduce impacts in these areas by maintaining large parcel sizes (5, 40, and 160 acres), restricting commercial development to the Kennedy Meadows Road, and applying fencing restrictions to allow for deer movement during migration.

b. Transportation

Most access to the herd's range has been limited to four-wheel-drive roads and OHV trails. Restrictions applied in critical habitat (i.e. fawning, feeding, holding, etc.) have been regulated by the Public agencies administrating the land.

c. Public services

No impacts anticipated.

d. Energy

Because of the high use area of the Monache Meadows complex by deer, energy development is expected to cause major impacts to the herd. An anticipated reduction of habitat and human disturbance factors

during the review of a proposed geothermal development in this area, an estimated 20% loss of deer was projected. Both deer herd plans and USFS plans call for an increase in herd numbers in this herd, thus reducing the likelihood of large energy projects.

e. **Human health**

None anticipated.

f. **Aesthetics**

None anticipated.

g. **Cultural resources**

The potential to impact cultural resources lies in the incidental take of archaeological artifacts while hunters are in the field and the destruction of sites by vandals.

D. **Range Landownership - summarize the current landownership and discuss any changes since the completion of the deer herd plan or expected changes**

Land ownership is primarily public. Approximately 97 percent of the total range is managed by either the U. S. Forest Service (60 %) , Bureau of Land Management (34 %) , or National Park Service (3 %). The largest percentage of private ownership occurs in the Kennedy Meadows area and the Monache Meadows area. Little or no development has occurred within the Monache Meadows area, while considerable development has occurred in Kennedy Meadows (mostly summer use trailers or cabins). This area mostly impacts the deer along migration corridors.

Outside of the Federal ownership, approximately 3 percent of the lands are in private ownership, mainly in the Kennedy Meadows area. Since this area is primarily along migration corridors, Tulare County has adopted, in its Kennedy Meadows Plan, restrictions to development in this area. Large parcel sizes, away from the Kennedy Meadows Road, of 40, 80, and 160 acres with appropriate deer fence construction to allow movement.

E. **Range Vegetation - how has the vegetation changed as a result of the following [if a migratory herd, identify range (summer, winter, etc.)]**

1. **Fire**

The effects of fire on this range in the days of Indian-caused burns were largely unknown until records were started

in 1940. Since then only four fires in excess of 100 acres have burned on the summer range; the 1951 Woodpecker fire of 5,000 acres, the 1957 Dome fire of 205 acres, the Olancha Peak fire of 180 acres, and the 1980 Clover fire of 5,030 acres.

On the winter range four fires of over 100 acres have been recorded. In 1940, the Diaz Creek fire burned 890 acres of sage and buckwheat, the Nine Mile Canyon fire of 1947 burned 820 acres of mostly pinyon pine, the Georges Creek fire of 1949, burned 480 acres of bitterbrush, and the Walker Creek fire of 1988 burned 300 acres of blackbrush and sage.

2. Livestock Grazing

Longhurst (1952) relates a pack trip reported by Game Warden Ross Welch, which was made from Kernville to Mt. Whitney in the 1890's. Serious abuse by livestock was found throughout and no game was seen. Welch also reported another trip from Camp Nelson to Mt. Whitney in 1908, during which no game was seen.

Old Inyo National Forest records indicate that the Kern Plateau was used regularly for livestock grazing as early as 1850. One estimate by an Inyo Forest range employee stated that as many as 15,000 cattle were grazing from Monache Meadows to Rockhouse Basin in early 1852.

Cattle grazing continued to be extremely heavy on the Kern Plateau, and in 1930, Inyo National Forest records show that sheet and gully erosion was becoming a serious problem in most of the mountain meadow areas. It wasn't until 1948 that a reduction was made, and even then the allotment was only reduced to 3,000 head. Since 1948, cattle numbers on the Kern Plateau and lower winter ranges have been gradually reduced to the present (1988) level of 2,285 head on USFS allotments, with an additional 889 head of cattle and 150 head of sheep using the winter range of the Monache deer herd under permit from BLM.

BLM land management planning efforts concern mainly winter range habitats. Efforts in the Long Valley area have been substantial in the reduction of cattle/deer conflicts, with the development of more appropriate on/off dates of livestock use, meadow and spring restoration, and reduction of deer/recreation conflicts. The Olancha winter range area has seen reductions in deer/livestock conflicts and water development proposals.

On the USFS lands, conflicts between deer and Forest management activities include competition for forage with domestic livestock, disturbance of deer and deer fawning

areas by road traffic and off-highway vehicles, and changes or disturbances caused by timber management activities.

The Forest's commitment to the implementation of the Monache Deer Herd Plan (1981) will tend to mitigate some of the impacts. Also, new riparian/meadow guidelines for the Forests, tend to mitigate losses in these critical areas.

3. Logging

Logging activity on the Monache deer herd range has been relatively insignificant prior to 1963. The first serious logging efforts on the Kern Plateau began when a road was constructed from Kennedy Meadows to Beach Ridge in 1965.

Currently, timber is managed under the even-age system incorporating such harvest practices as clearcutting, shelterwood and intermediate methods. Modified even-aged practices are used where timber production is not the dominant use, such as recreation sites, sensitive areas or critical wildlife habitat.

The Inyo National Forest's land management plan has excluded most of the herd's summer range within their jurisdiction from harvest during this planning period. The Sequoia National Forest continues to harvest timber on the southern and western portions of the herd's ranges.

4. Drought

Range vegetation in most of the herd's range is largely dependent on winter snows. Continuous drought conditions as experience during the 1987-89 year, combined with heavy livestock competition, drastically reduces the availability of summer range forage. Reductions in livestock numbers and seasons of use have been used to reduce the impacts to deer in this area.

The winter ranges are extremely vulnerable to drought conditions. Reductions in food supplies on the winter ranges impacts the deer mostly in the reduction of fawn survival over the winter, and during the spring when forage conditions are critical for the survival of newborn fawn.

5. Other

Under today's management, approximately 300,000 acres of the herd's range is classified as Wilderness. The bulk of the Wilderness (89 percent) lies in the summer range of the herd and are administered by both the Inyo and Sequoia National Forests. These areas include portions of the Golden Trout Wilderness and the newly created (1987) South Sierra

Wilderness. The remaining wilderness area includes a part of the Domeland Wilderness, which contains parts of the Long Valley winter range.

Habitat management proposals should be incorporated into the wilderness management plans so that continued deer habitat could be managed and/or enhanced.

Water resources in the herd's range remained untouched until construction of the Los Angeles Aqueduct was completed in 1913. This project drained the Owens Lake and appropriated water from the Owens River. The aqueduct project also dried the valleys bordering the eastern slope of the Sierra's by lowering water tables with the result that much range formally inhabited by deer is no longer used.

Loss of deer through drowning in the aqueduct is known to occur, but, no records of total numbers have been recorded. Recently, chain-link fencing has been placed along the open portions of the aqueduct, thus reducing accidental drownings. Although the fencing prevents drowning of deer, it also restricts movement of deer on the winter ranges.

F. What Current and Expected/Proposed Deer Projects are Planned Using the Hill Bill Funds?

1. Habitat Manipulation Projects

Present projects include; 1.) Deer Springs fencing project by BLM to protect the water source; and 2.) Ramshaw Meadow riparian habitat fencing and restoration project - USFS - to protect fawning habitat.

Proposed projects include; 1.) Prescribed burn on the Haiwee winter range (Walker Creek) for habitat improvement; 2.)water development on the Haiwee winter range; and 3.) fencing of the south Haiwee winter range to preclude livestock competition.

2. Investigative Projects

Current projects include; 1) helicopter composition count surveys.

Past projects have included helicopter composition counts and a three year telemetry study.

Future proposal include: 1.) fawning site evaluation; 2.) range evaluation; 3.) telemetry work in the Long Valley winter range; 4.) helicopter composition counts; 5.) evaluation of deer/livestock competition; 6.) evaluation of

Tunnel Meadow riparian area for fawning habitat; and 7.) food habitats studies.

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THE MONACHE DEER HERD PLAN
1990 UPDATE

HERD SUMMARY

The Monache deer herd contains both California and Inyo mule deer, and their range covers both eastern and western slopes of the Sierra Nevada range in Tulare, Inyo, and Kern Counties. Elevations range from about 3,200 ft. msl along the desert slopes in Inyo County to well over 11,000 ft. msl on the summer ranges in Sequoia National Park.

Deer numbers in this herd were reported to be very low around the turn of the century, largely because of extreme overgrazing by domestic sheep and cattle that denuded much of the herd's summer range. Under USFS jurisdiction, livestock allotments were reduced and timber harvesting operations began; this combination brought about improved range conditions and an increase in deer numbers. The herd population apparently peaked in 1950; soon thereafter, the forces of plant succession, more efficient fire suppression, livestock competition, and perhaps overzealous doe hunt regulations, were responsible for a noticeable long-term decline in the deer population. During the 1970's a reversal of this downward trend became apparent, and a dramatic increase in the population has been evident over the past eight to ten years.

The best known key summer range for this herd is between elevations 6,000 - 8,000 ft. msl, in the Honeybee/Summit Meadow/Brush Meadow area, adjacent to Monache Meadows. The herd's major winter range is on the desert slope of the Sierra in Inyo County between Cottonwood Creek and Five Mile Canyon. A small segment of the herd is also known to winter in the Long Valley area in southeastern Tulare County.

There have been no habitat improvement projects specifically for deer anywhere on the Monache deer herd range. The 5,000 acre Clover Fire in 1980 occurred across important fawning, hunting, and migration zones and should enhance habitat and the herd. A total of 42 bucks were killed in the fire area in 1981, compared with an average kill of 12 bucks during the three years preceding the fire.

The management goals for this herd are: 1) to maintain the present long-term upward trend in the herd population, primarily by improving habitat conditions; 2) to maintain a viable and healthy deer herd in balance with range carrying capacities; and 3) to provide maximum public use of the herd for both consumptive and non-consumptive pursuits without jeopardizing herd well- being.

Major actions that must be undertaken to attain these management goals include further study, delineation and improvement of key areas of the herd range; increased coordination between Department personnel and agencies controlling the range, with emphasis on providing input into the planning process for critically important aspects of land use such as timber harvest, livestock grazing, and recreational developments.

INVESTIGATIVE ELEMENT

1. Major Problems

a. Although much data has been gathered on this herd through the use of radio-telemetry as to propagation sites, migration routes and holding areas, none of the data were gathered on that portion of the herd that winters in the Rockhouse Basin-Long Valley area.

b. Vegetative data is incomplete and lacking on the Inyo National Forest's portion of the herd's summer range.

c. Non-hunting uses by OHV's, hikers and campers and their effect on herd viability is unknown on both winter and summer ranges.

2. Results of Investigations During the Year.
Herd composition counts were made on the Haiwee winter range and the Monache Meadows summer range. The general lack of deer due to late migrations onto the winter ranges may account for some variations in buck ratios as seen in years where December and January counts are taken.

Herd composition data indicates that a minimum of 37 to 47 bucks per 100 does exist in this herd annually. Winter counts of bucks in this herd is difficult because of the lack of snow at the higher elevations to move a large percentage of bucks onto the winter ranges prior to the counts. The 1985 and 1986 fall counts (both early snow years) indicate a post harvest ratio of 47 bucks per 100 does. The 1989 fall counts were completed with the use of a helicopter to survey the ranges, and indicated 15 bucks per 100 does, but, migration onto the winter range as of December 30 had not fully occurred, with slightly over 100 animals seen on the winter range as compared to over 250 seen still occupying the summer range above Monache meadow.

Summer counts done in Monache Meadows each fall indicate an excellent fawn recruitment rate for 1987, 1988, and 1989 of 76, 56, and 80 fawns per 100 does respectively. September composition counts made in 1989 indicate an improvement in fawn recruitment over the 1988 counts, but a small sample size in 1988 may have under-estimated the fawn recruitment for that year.

HAIWEE WINTER RANGE

	BUCKS/100	FAWNS/100 DOES		SAMPLE SIZE	
DATE	DOES	PRE WINTER	POST WINTER	FALL	SPRING
12/86*	26	37	31	171	884
1/87*	18	36	31	262	884
1/88	32	29	20	882	529
12/88	19	29	21	123	676
12/89	15	49		357	

* Comparative counts made in December and January

MONACHE MEADOW SUMMER RANGE

Date	Does	Fawns	Bucks	Ratio B/D/F	Sample Size
Aug. 1986	98	44	47	48/100/45	189
Sept. 1987	116	27	88	23/100/76	231
Sept. 1988	52	29	0	0/100/56	81
Sept. 1989	82	66	5	6/100/80	153

During the 1988 hunting season, data was collected on age, weight, and antler development. A total of 1075 permits (500 Period 1, 400 Period 2, 100 Period 3, and 75 Period 4) were issued. Period 1 was September 30 to October 14; Period 2 was October 23 to November 5; Period 3 was November 18 to November 26 (muzzle loading only); and Period 4 was December 2 to December 10 (three point of better). The data collected at opening weekend hunter check stations is shown below>

AGE DATA

Age	Period 1 # Checked %	Period 2 # Checked %	Period 3 # Checked %	Period 4 # Checked %	1989 Total %	1988 %
1	0 (00)	0 (00)	0 (00)	0 (00)	0 (00)	0(00)
2	4 (100)	0 (00)	0 (00)	0 (00)	4 (25)	10(29)
3	2 (67)	1 (33)	0 (00)	0 (00)	3 (19)	16(46)
4	2 (100)	0 (00)	0 (00)	0 (00)	2 (13)	5(14)
4+	0 (00)	0 (00)	1 (100)	0 (00)	1 (6)	4(11)
Unkn	5 (83)	1 (17)	0 (00)	0 (00)	6 (38)	0(00)
Total	13(81)	2 (13)	1 (06)	0 (00)	16(100)	35(100)

WEIGHT DATA (POUNDS)

Age	Period 1 # Checked	Period 2 # Checked	Period 3 # Checked	Period 4 # Checked	Seasonal Total 1988 Avg Wt	1989 Avg Wt
1	0 (000.0)	0 (000.0)	0 (000.0)	0 (000.0)	0 (000.0)	0 (00.0)
2	1 (91.0)	0 (000.0)	0 (000.0)	0 (000.0)	7 (95.8)	1 (91.0)
3	2 (108.0)	0 (000.0)	0 (000.0)	0 (000.0)	13 (106.8)	2(108.0)
4	2 (111.0)	0 (000.0)	0 (000.0)	0 (000.0)	4 (115.2)	2(111.0)
4+	0 (000.0)	0 (000.0)	0 (000.0)	0 (000.0)	3 (128.8)	0(000.0)
Unkn	0 (000.0)	1 (105.0)	0 (000.0)	0 (000.0)	1 (100.0)	1(105.0)
Total	5 (103.3)	1 (105.0)	0 (000.0)	0 (000.0)	28 (109.1)	6(103.8)

3. Proposed Studies

a. Continue winter and spring herd composition counts on major deer concentrations on the Haiwee and Cottonwood winter ranges.

b. Make fall fawn counts on the Monache Meadows complex.

c. Establish winter and spring herd composition counts on the Long Valley-Rockhouse Basin winter range.

d. Continue to delineate areas where potentially productive habitat is being avoided by deer because of human and livestock disturbances.

e. Continue to locate and map as many fawning sites as possible.

f. Continue to operate the check station on all hunts for the Monache deer herd.

g. Conduct a fawning location and habitat analysis within the Templeton grazing allotment.

HABITAT ELEMENT

The overall long-term condition of the Monache deer herd range is fair, with a downward trend, due to a general lack of natural disturbances in vegetation characteristics. Rainfall and snow to date (April 1990) has been well below normal levels, with water content of the snowpack well below normal. Early warming trends should provide ample early forage for migrating deer, but late season quality may be lacking.

Specific problems that must be overcome to improve overall range conditions are:

1. In cooperation with USFS, livestock utilization levels in riparian areas need to be monitored, and any over-utilization areas identified for treatment.

2. The road and trail system in the Monache Meadows complex needs to be mapped and analyzed. Recommendations for permanent and temporary closures will be submitted to USFS.

3. The Long Valley winter range area will be mapped by vegetation type, and areas will be recommended for vegetative manipulation to improve forage conditions for deer.

4. Areas within wilderness need to be mapped for "wilderness burning" designation to improve habitat.

MORTALITY CONTROL ELEMENT

The only known mortality element of consequence affecting the Monache deer herd

are hunting, illegal poaching and predators. It must also be assumed that disease, accidents, and parasites take an undetermined number of deer each year, but these losses are not considered significant.

The removal of deer each year by hunting is further discussed under the Utilization Element of this plan. Illegal poaching is further discussed under the Law Enforcement Element.

Primary predators known to take deer on this range are mountain lions and coyotes. Bobcats, eagles, and bear may also be involved, but to a lesser degree. It is presently unknown whether predation is a limiting factor on the Monache herd.

Predatory animal control is not recommended until such time as further studies can be made to determine the extent of losses and the effect of such losses on herd viability.

Studies Proposed:

1. Investigate vegetative composition and nutritional levels of the vegetation on the herd's winter and summer ranges.

LAW ENFORCEMENT ELEMENT

Illegal poaching is known to occur, particularly on the more vulnerable winter ranges, but the extent of this activity is presently unknown. Little can be done to reduce this illegal take without additional funds to increase enforcement efforts. Even then, it may not be possible to effect a significant reduction in poaching activities. There is also a known loss of yearling bucks and does that are taken by hunters each year on the summer range incidental to legal buck hunting. Management changes in the form of quota hunts on the herd seem to have reduced this number of illegally taken animals.

Actions Proposed:

1. Increase the number of wardens assigned to the Monache Meadows area on all weekends of the annual deer season.

2. Arrange with USFS for additional patrols in Monache Meadows during the hunting season.

3. Arrange with USFS and wardens for additional patrol time on winter range concentration areas.

UTILIZATION ELEMENT

The 1989 deer season for the X-10 zone corresponded to the same time frame as for the 1988 season with the exception of period 1, which started one week later than the previous year. Tag quotas were the same as the 1988 season (1075 permits).

Extremely dry conditions existed for both period one and two. These conditions impacted hunting success during period 2 by reducing migration into accessible areas. Period 3 hunters were also affected by dry weather on the Haiwee winter

range by the lack of migration to the lower elevations. Period 4 hunters had some snow, but lacked sufficient quantities to move many deer onto the Haiwee winter range. Most of the deer taken during the period 3 and 4 hunts came from the Long Valley-Rockhouse Basin winter ranges.

The buck kill during these four periods is shown below:

MONACHE DEER HERD
(Kern, Tulare and Inyo Counties)

Year	Kill	# Tags Sold	% Success
1981	254	1572	16.15%
1982	130	650	20.00%
1983	146	650	22.46%
1984	189	700	27.00%
1985	234	700	33.43%
1986	200	850	23.53%
1987	197	850	23.18%
1988	175	1075	16.28%
1989	151	1075	14.05%

Ten Year Average - 167.6

A breakdown of the period of use during the seasons are listed below:

	1988			1989	
	Kill	% Kill		Kill	% Kill
Period 1: 9/26-10/11	85	48%	Period 1: 9/30-10/14	63	42%
Period 2: 10/17-11/1	43	25%	Period 2: 10/23-11/5	54	36%
Period 3: 11/21-11/29	14	8%	Period 3: 11/18-11/26	13	9%
Period 4: 12/5-12/13	29	17%	Period 4: 12/2-12/10	20	13%
Archery	4	2%	Archery	1	0.6%
Total	175	100%		151	100%

The success rates for each of the four hunt periods is listed below:

Date	Permits Issued	Buck Kill	% Success
Period 1	500	64	12.28%
Period 2	400	54	13.50%
Period 3	100	13	13.00%
Period 4	75	20	26.67%

Also gathered over the seasons was a record of antler development within the kill. This data was broken down into time periods to possibly indicate a correlation with age. The following is a breakdown of this data:

Overall Antler Development/Period of Kill
(Points) 1989

Time	2 (%)	3 (%)	4 (%)	5 (%)	Unkn (%)	Total (%)
Period 1	39 (61)	17 (27)	8 (13)	0 (00)	0 (00)	64 (42)
Period 2	25 (46)	18 (33)	10 (19)	1 (02)	0 (00)	54 (36)
Period 3	7 (54)	2 (15)	4 (31)	0 (00)	0 (00)	13 (09)
Period 4	0 (00)	12 (60)	8 (40)	0 (00)	0 (00)	20 (13)
Total	61 (40)	49 (32)	30 (20)	1 (01)	0 (00)	151 (100)

Antler Development vs. Age
Check Station Data
Points

Age	2 (%)	3 (%)	4 (%)	5 (%)	Total (%)	Total (%)
1	0 (000)	0 (000)	0 (000)	0 (000)	0 (000)	6 (12)
2	9 (90)	1 (10)	0 (000)	0 (000)	10 (29)	12 (24)
3	11 (69)	4 (25)	1 (6)	0 (000)	16 (46)	18 (36)
4	0 (000)	2 (40)	3 (60)	0 (000)	5 (14)	8 (16)
4+	0 (000)	3 (75)	1 (25)	0 (000)	4 (11)	6 (12)
Total	20 (57)	10 (29)	4 (11)	0 (000)	35 (100)	50 (100)

Management Problems

1. Conflicts with development (i.e. roads and trails) could seriously affect herd production in important summer ranges.

2. Continued drought conditions could affect herd production and thus harvest levels.

Actions Proposed to Solve Management Problems

1. Inform the public on plans for development that would have negative impacts on the Monache deer herd.

2. Coordinate with USFS and BLM on trail head sites, trail locations, camping areas and concentration points.

3. Inform the hunting segment as to hunting conditions and general locations of deer during the hunting seasons.

MANAGEMENT CONCLUSIONS

Presently the Monache deer herd could be considered in a healthy condition, with an increasing population. Survival of fawns in this herd is directly related to weather conditions, during the spring, on winter range. Critical nutrition on winter range for does is needed to maintain fawn health during the last trimester of pregnancy. Less than optimal conditions exist on portions of the summer range. Ongoing investigations indicate a higher fawn survival rate on the Monache Meadows portion of the summer range than on either the Golden Trout Wilderness or in the Sequoia National Park. Continued investigations into the causes of this decline are needed.

Deer numbers in the Long Valley portion of the herd's winter range continue to be sub-optimal. Mountain lion studies in this area indicate high concentrations of lions, and may be one of the factors keeping deer numbers at low levels.

Continued drought conditions in the herd's range appear to be impacting fawn production over the last two years and could impact hunter success in future years. Continued dry conditions may require the reduction in hunting pressure to maintain herd viability.

As more data is gathered on the habits of this herd, more intensive management practices could be initiated. Continued coordination between the managing agencies is needed to supply and upgrade information on the herd. The cooperation of all agencies concerned will produce the best benefits for the herd and provide the best opportunities for use of the herd by the public.

A. MONACHE DEER HERD PROGRESS REPORT - MARCH 1990

B. HERD SUMMARY

The Monache deer herd contains both California and Inyo mule deer, and their range covers both eastern and western slopes of the Sierra Nevada range in Tulare, Inyo, and Kern Counties. Elevations range from about 3,200 ft. msl along the desert slopes in Inyo County to well over 11,000 ft. msl on the summer ranges in Sequoia National Park.

Deer numbers in this herd were reported to be very low around the turn of the century, largely because of extreme overgrazing by domestic sheep and cattle that denuded much of the herd's summer range. Under USFS jurisdiction, livestock allotments were reduced and timber harvesting operations began; this combination brought about improved range conditions and an increase in deer numbers. The herd population apparently peaked in 1950; soon thereafter, the forces of plant succession, more efficient fire suppression, livestock competition, and perhaps overzealous doe hunt regulations, were responsible for a noticeable long-term decline in the deer population. During the 1970's a reversal of this downward trend became apparent, and a dramatic increase in the population has been evident over the past eight to ten years.

The best known key summer range for this herd is between elevations 6,000 - 8,000 ft. msl, in the Honeybee/Summit Meadow/Brush Meadow area, adjacent to Monache Meadows. The herd's major winter range is on the desert slope of the Sierra in Inyo County between Cottonwood Creek and Five Mile Canyon. A small segment of the herd is also known to winter in the Long Valley area in southeastern Tulare County.

There have been no habitat improvement projects specifically for deer anywhere on the Monache deer herd range. The 5,000 acre Clover Fire in 1980 occurred across important fawning, hunting, and migration zones and should enhance habitat and the herd. A total of 42 bucks were killed in the fire area in 1981, compared with an average kill of 12 bucks during the three years preceding the fire.

The management goals for this herd are: 1) to maintain the present long-term upward trend in the herd population, primarily by improving habitat conditions; 2) to maintain a viable and healthy deer herd in balance with range carrying capacities; and 3) to provide maximum public use of the herd for both consumptive and non-consumptive pursuits without jeopardizing herd well-being.

Major actions that must be undertaken to attain these management goals include further study, delineation and improvement of key areas of the herd range; increased coordination between Department personnel and agencies controlling the range, with emphasis on providing input into the planning process for critically important aspects of land use such as timber harvest, livestock grazing, and recreational developments.

C. INVESTIGATIVE ELEMENT

1. Major Problems

a. Although much data has been gathered on this herd through the use of radio-telemetry as to propagation sites, migration routes and holding areas, none of the data were gathered on that portion of the herd that winters in the Rockhouse Basin-Long Valley area.

b. Vegetative data is incomplete and lacking on the Inyo National Forest's portion of the herd's summer range.

c. Non-hunting uses by OHV's, hikers and campers and their effect on herd viability is unknown on both winter and summer ranges.

2. Results of Investigations During the Year.
Herd composition counts were made on the Haiwee winter range and the Monache Meadows summer range. The general lack of deer due to late migrations onto the winter ranges may account for some variations in buck ratios as seen in years where December and January counts are taken.

Herd composition data indicates that a minimum of 37 to 47 bucks per 100 does exist in this herd annually. Winter counts of bucks in this herd is difficult because of the lack of snow at the higher elevations to move a large percentage of bucks onto the winter ranges prior to the counts. The 1985 and 1986 fall counts (both early snow years) indicate a post harvest ratio of 47 bucks per 100 does. The 1989 fall counts were completed with the use of a helicopter to survey the ranges, and indicated 15 bucks per 100 does, but, migration onto the winter range as of December 30 had not fully occurred, with slightly over 100 animals seen on the winter range as compared to over 250 seen still occupying the summer range above Monache meadow.

Summer counts done in Monache Meadows each fall indicate an excellent fawn recruitment rate for 1987, 1988, and 1989 of 76, 56, and 80 fawns per 100 does respectively. September composition counts made in 1989 indicate an improvement in fawn recruitment over the 1988 counts, but a small sample size in 1988 may have under-estimated the fawn recruitment for that year.

HAIWEE WINTER RANGE

DATE	BUCKS/100 DOES	FAWNS/100 DOES PRE WINTER	FAWNS/100 DOES POST WINTER	SAMPLE SIZE FALL	SAMPLE SIZE SPRING
12/86*	26	37	31	171	884
1/87*	18	36	31	262	884
1/88	32	29	20	882	529
12/88	19	29	21	123	676
12/89	15	49	**39**	357	**368**

* Comparative counts made in December and January

MONACHE MEADOW SUMMER RANGE

Date	Does	Fawns	Bucks	Ratio B/D/F	Sample Size
Aug. 1986	98	44	47	48/100/45	189
Sept. 1987	116	27	88	23/100/76	231
Sept. 1988	52	29	0	0/100/56	81
Sept. 1989	82	66	5	6/100/80	153

During the 1988 hunting season, data was collected on age, weight, and antler development. A total of 1075 permits (500 Period 1, 400 Period 2, 100 Period 3, and 75 Period 4) were issued. Period 1 was September 30 to October 14; Period 2 was October 23 to November 5; Period 3 was November 18 to November 26 (muzzle loading only); and Period 4 was December 2 to December 10 (three point of better). The data collected at opening weekend hunter check stations is shown below>

AGE DATA

Age	Period 1 # Checked %	Period 2 # Checked %	Period 3 # Checked %	Period 4 # Checked %	1989 Total %	1988 %
1	0 (00)	0 (00)	0 (00)	0 (00)	0 (00)	0(00)
2	4 (100)	0 (00)	0 (00)	0 (00)	4 (25)	10(29)
3	2 (67)	1 (33)	0 (00)	0 (00)	3 (19)	16(46)
4	2 (100)	0 (00)	0 (00)	0 (00)	2 (13)	5(14)
4+	0 (00)	0 (00)	1 (100)	0 (00)	1 (6)	4(11)
Unkn	5 (83)	1 (17)	0 (00)	0 (00)	6 (38)	0(00)
Total	13(81)	2 (13)	1 (06)	0 (00)	16(100)	35(100)

WEIGHT DATA (POUNDS)

Age	Period 1 # Checked	Period 2 # Checked	Period 3 # Checked	Period 4 # Checked	Seasonal Total 1988 Avg Wt	1989 Avg Wt
1	0 (000.0)	0 (000.0)	0 (000.0)	0 (000.0)	0 (000.0)	0 (00.0)
2	1 (91.0)	0 (000.0)	0 (000.0)	0 (000.0)	7 (95.8)	1 (91.0)
3	2 (108.0)	0 (000.0)	0 (000.0)	0 (000.0)	13 (106.8)	2(108.0)
4	2 (111.0)	0 (000.0)	0 (000.0)	0 (000.0)	4 (115.2)	2(111.0)
4+	0 (000.0)	0 (000.0)	0 (000.0)	0 (000.0)	3 (128.8)	0(000.0)
Unkn	0 (000.0)	1 (105.0)	0 (000.0)	0 (000.0)	1 (100.0)	1(105.0)
Total	5 (103.3)	1 (105.0)	0 (000.0)	0 (000.0)	28 (109.1)	6(103.8)

3. Proposed Studies

a. Continue winter and spring herd composition counts on major deer concentrations on the Haiwee and Cottonwood winter ranges.

b. Make fall fawn counts on the Monache Meadows complex.

c. Establish winter and spring herd composition counts on the Long Valley-Rockhouse Basin winter range.

d. Continue to delineate areas where potentially productive habitat is being avoided by deer because of human and livestock disturbances.

e. Continue to locate and map as many fawning sites as possible.

f. Continue to operate the check station on all hunts for the Monache deer herd.

g. Conduct a fawning location and habitat analysis within the Templeton grazing allotment.

D. HABITAT ELEMENT

The overall long-term condition of the Monache deer herd range is fair, with a downward trend, due to a general lack of natural disturbances in vegetation characteristics. Rainfall and snow to date (April 1990) has been well below normal levels, with water content of the snowpack well below normal. Early warming trends should provide ample early forage for migrating deer, but late season quality may be lacking.

Specific problems that must be overcome to improve overall range conditions are:

1. In cooperation with USFS, livestock utilization levels in riparian areas need to be monitored, and any over-utilization areas identified for treatment.

2. The road and trail system in the Monache Meadows complex needs to be mapped and analyzed. Recommendations for permanent and temporary closures will be submitted to USFS.

3. The Long Valley winter range area will be mapped by vegetation type, and areas will be recommended for vegetative manipulation to improve forage conditions for deer.

4. Areas within wilderness need to be mapped for "wilderness burning" designation to improve habitat.

E. MORTALITY CONTROL ELEMENT

The only known mortality element of consequence affecting the Monache deer herd are hunting, illegal poaching and predators. It must also be assumed that disease, accidents, and parasites take an undetermined number of deer each year, but these losses are not considered significant.

The removal of deer each year by hunting is further discussed under the Utilization Element of this plan. Illegal poaching is further discussed under the Law Enforcement Element.

Primary predators known to take deer or this range are lions and coyotes. Bobcats, eagles, and bear may also be involved, but to a lesser degree. It is presently unknown whether predation is a limiting factor in the Monache herd.

Predatory animal control is not recommended until such time as further studies can be made to determine the extent of losses and the effect of such losses on herd viability.

Studies Proposed:

1. Investigate vegetative composition and nutritional levels of the vegetation on the herd's winter and summer ranges.

F. LAW ENFORCEMENT ELEMENT

Illegal poaching is known to occur, particularly on the more vulnerable winter ranges, but the extent of this activity is presently unknown. Law enforcement personnel believe that the annual loss to poaching may equal the legal hunter harvest of 150 to 200 deer. Little can be done to reduce this illegal take without additional funds to increase enforcement efforts. Even then, it may not be possible to effect a significant reduction in poaching activities. There is also a known loss of yearling bucks and does that are taken by hunters each year on the summer range incidental to legal buck hunting. Management changes in the form of quota hunts on the herd seem to have reduced this number of illegally taken animals.

Actions Proposed:

1. Increase the number of wardens assigned to the Monache

Meadows area on all weekends of the annual deer season.

2. Arrange with USFS for additional patrols in Monache Meadows during the hunting season.

3. Arrange with USFS and wardens for additional patrol time on winter range concentration areas.

G. UTILIZATION ELEMENT

The 1989 deer season for the X-10 zone corresponded to the same time frame as for the 1988 season with the exception of period 1, which started one week later than the previous year. Tag quotas were the same as the 1988 season (1075 permits).

Extremely dry conditions existed for both period one and two. These conditions impacted hunting success during period 2 by reducing migration into accessible areas. Period 3 hunters were also affected by dry weather on the Haiwee winter range by the lack of migration to the lower elevations. Period 4 hunters had some snow, but the lack of sufficient quantities to move many deer onto the Haiwee winter range. Most of the deer taken during the period 3 and 4 hunts came from the Long Valley-Rockhouse Basin winter ranges.

The buck kill during these four periods are shown below:

MONACHE DEER HERD
(Kern, Tulare and Inyo Counties)

Year	Kill	# Tags Sold	% Success
1981	254	1572	16.15%
1982	130	650	20.00%
1983	146	650	22.46%
1984	189	700	27.00%
1985	234	700	33.43%
1986	200	850	23.53%
1987	197	850	23.18%
1988	175	1075	16.28%
1989	151	1075	14.05%

Ten Year Average - 167.6

A breakdown of the period of use during the seasons are listed below:

	1988 Kill	% Kill		1989 Kill	% Kill
Period 1: 9/26-10/11	85	48%	Period 1: 9/30-10/14	63	42%
Period 2: 10/17-11/1	43	25%	Period 2: 10/23-11/5	54	36%
Period 3: 11/21-11/29	14	8%	Period 3: 11/18-11/26	13	9%
Period 4: 12/5-12/13	29	17%	Period 4: 12/2-12/10	20	13%
Archery	4	2%	Archery	1	0.6%
Total	175	100%		151	100%

The success rates for each of the four hunt periods is listed below:

Date	Permits Issued	Buck Kill	% Success
Period 1	500	64	12.28%
Period 2	400	54	13.50%
Period 3	100	13	13.00%
Period 4	75	20	26.67%

- Also gathered over the seasons was a record of antler development within the kill. This data was broken down into time periods to possibly indicate a correlation with age. The following is a breakdown of this data:

Overall Antler Development/Period of Kill
(Points) 1989

Time	2 (%)	3 (%)	4 (%)	5 (%)	Unkn (%)	Total (%)
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Total	61 (40)	49 (32)	30 (20)	1 (01)	0 (00)	151 (100)

Antler Development vs. Age
Check Station Data
Points

Age	2	(%)	3	(%)	4	(%)	5	(%)	Total	(%)	Total	(%)
1	0	(000)	0	(000)	0	(000)	0	(000)	0	(000)	6	(12)
2	9	(90)	1	(10)	0	(000)	0	(000)	10	(29)	12	(24)
3	11	(69)	4	(25)	1	(6)	0	(000)	16	(46)	18	(36)
4	0	(000)	2	(40)	3	(60)	0	(000)	5	(14)	8	(16)
4+	0	(000)	3	(75)	1	(25)	0	(000)	4	(11)	6	(12)
Total	20	(57)	10	(29)	4	(11)	0	(000)	35	(100)	50	(100)

Management Problems

1. Conflicts with development opportunities (i.e. roads and trails) could seriously affect herd production in important summer ranges.

2. Continued drought conditions could affect herd production and thus harvest levels.

Actions Proposed to Solve Management Problems

1. Inform the public on plans for development that would have negative impacts on the Monache deer herd.

2. Coordinate with USFS and BLM on trail head sites, trail locations, camping areas and concentration points.

3. Inform the hunting segment as to hunting conditions and general locations of deer during the hunting seasons.

H. MANAGEMENT CONCLUSIONS

Presently the Monache deer herd could be considered in a healthy condition, with an increasing population status. Survival of fawns in this herd is directly related to weather conditions, during the spring, on the winter ranges. Critical nutrition on the winter ranges for does is needed to maintain fawn health during the last trimester of pregnancy. Less than optimal conditions exist on portions of the summer ranges. Ongoing investigations indicate a higher fawn survival rate on the Monache Meadows portion of the summer range than on either the Golden Trout Wilderness or in the Sequoia National Park. Continued investigations into the causes of this decline are needed.

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impacting fawn production over the last two years and could impact hunter success during the preceding years. Continued dry conditions may require the reduction in hunting pressure to maintain herd viability.

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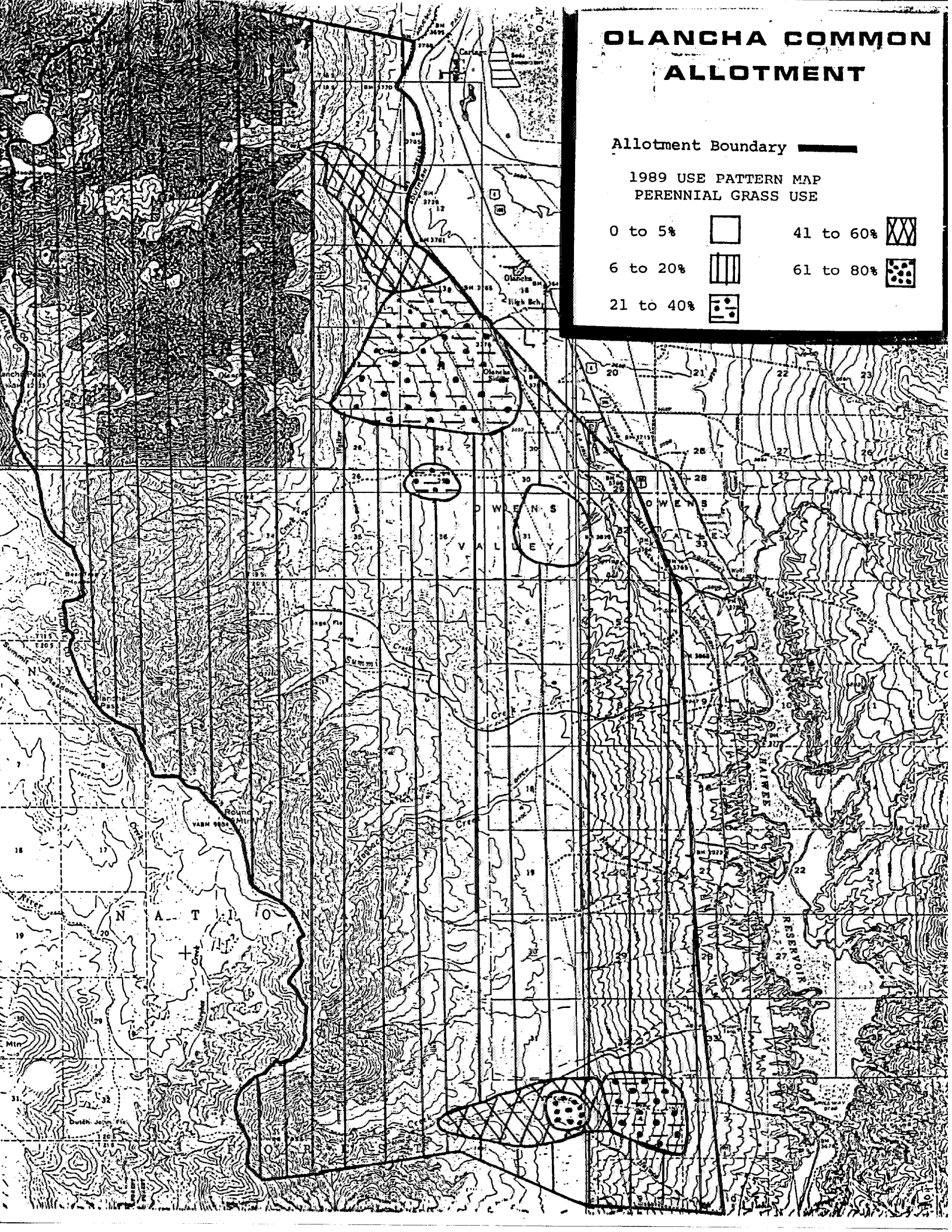
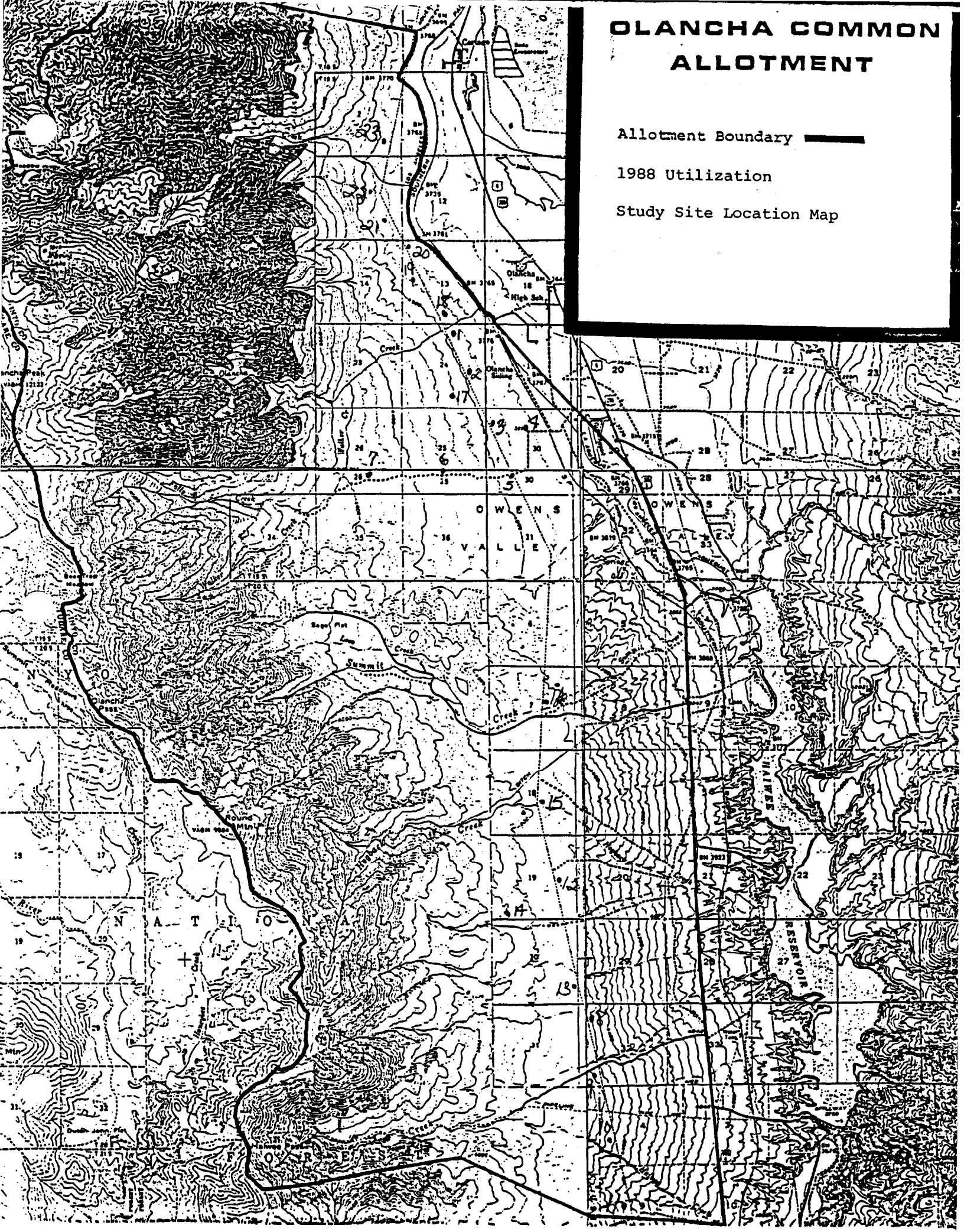
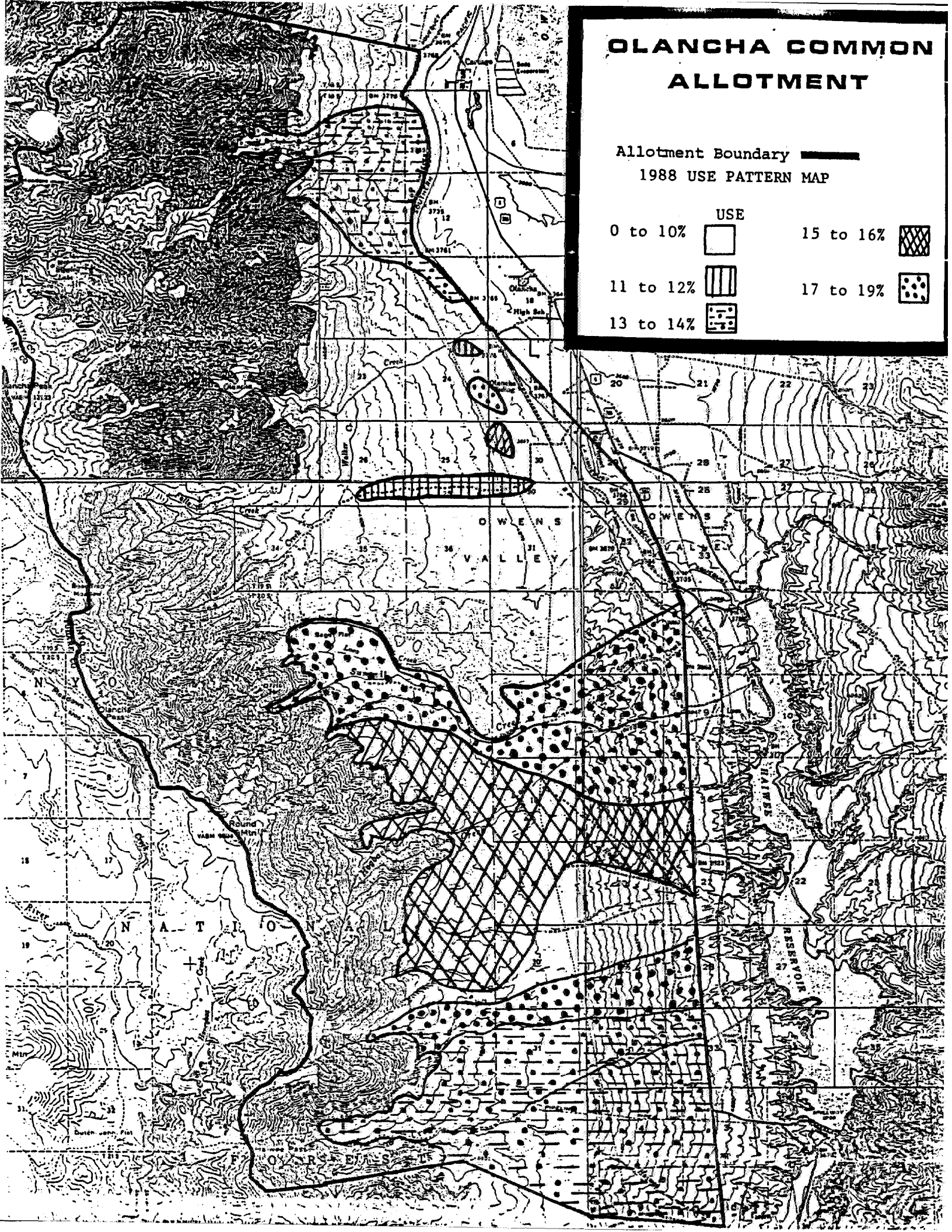

OLANCHA COMMON ALLOTMENT
Allotment Boundary
1989 USE PATTERN MAP
PERENNIAL GRASS USE
0 to 5%
6 to 20%
21 to 40%
41 to 60%
61 to 80%
OWENS VALLEY
NATIONAL FOREST
HAIWEE RESERVOIR


OLANCHA COMMON ALLOTMENT
Allotment Boundary
1988 Utilization
Study Site Location Map
OWENS VALLEY
NATIONAL FOREST
Olancha
Olancha Peak
Olancha Pass
Summit Creek
Walker Creek
Round Mtn.
HAIWEE RESERVOIR


OLANCHA COMMON ALLOTMENT
Allotment Boundary
1988 USE PATTERN MAP
USE
0 to 10%
11 to 12%
13 to 14%
15 to 16%
17 to 19%
OWENS VALLEY
NATIONAL FOREST
HAWES RESERVOIR

Actual Use On the Olancha Cattle Allotment

Animal Months Use by Year 1985 to 1989

(Estimated Capacity-1414 Animal Months)

Year	Actual Use	Allowed On Permit
1985	200	600
1986	200	"
1987	None	"
1988	None	"
1989	203	"
1990	None	"