INYO-WHITE MOUNTAINS DEER HERD MANAGEMENT PLAN

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INYO-WHITE MOUNTAINS DEER HERD MANAGEMENT PLAN

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INTRODUCTION

In response to a serious long-term decline in many California deer herds in the late 1960's and early 1970's, the Department of Fish and Game(DFG), with public input, developed a statewide plan for California deer. Consistent with Assembly Bill 1521 (Sept. 1977), the Department established the policy that 1) planning for deer be on a herd basis; 2) selected program elements be included in each herd plan; and 3) herd plan goals generally conform to the goals of the statewide plan.

This plan for the management of the Inyo-White Mountain deer herd will include: 1) description of the deer population and physical environment which constitutes its range and habitat; 2) management unit goals; 3) problems and potential solutions; 4) management programs, objectives, and recommended prescriptions; 5) alternatives; and 6) references. Since herd plans are dynamic, periodic review and updating are integral parts of the planning process. As additional information is obtained the plan will be revised appropriately.

The general goals of the statewide plan are to restore and maintain healthy deer herds at a desirable level and to provide for high quality and diversified use of the deer resource.
This desirable level for the Inyo-White Mountain herd is characterized by a population with buck ratios of about 25 per 100 does, reasonably high buck harvest, and deer numbers in balance with the capacity of all seasonal ranges.

DESCRIPTION OF DEER HERD MANAGEMENT UNIT

DEER HERD DEFINITION AND HISTORY

Herd Range and Population Estimates

The Inyo-White Mountains deer herd range consists of roughly 1,100 square miles within Inyo and Mono Counties. An additional 200 square miles of habitat in the White Mountains is within Mineral and Esmeralda Counties, Nevada (Figure 1). Of this 1,300 square miles, approximately 500 are in the Inyo Mountains and 800 in the White Mountains.

As is typical, deer populations are not evenly distributed over these ranges, but are concentrated in certain locations. Much of the area, particularly in the very dry and rugged Inyo range, is used only seldom or not at all by deer. Locations of key areas will be described in the following section labeled "HERD RANGE AND HISTORY."

For the purpose of this report, Highway 168 (Westgard Pass) will be considered the division between the Inyo and White Mountains as shown in Figure 2. Generally, summer ranges occur at higher elevations, particularly in the White Mountains.

No population estimates are currently available for this herd. Estimates of populations will be made after planned herd composition counts are completed.

FIGURE 1

LOCATION MAP — INYO-WHITE MTS. DEER HERD

Hunting Harvest

Reported buck harvest in the Inyo and White Mountains from 1947 through 1985 is shown in Table 1. Data on buck take for both ranges is available from 1960 to 1985. These figures do not include harvest in the Nevada portion of the White Mountains. Annual reported kill for this 25 year period has averaged 79, and has varied from 16 in 1961 to 153 in 1979. Of this average kill, 58 were taken in the White Mountains, and 21 in the Inyo Mountains (Table 1).

In the Nevada portion of the White Mountains, buck kill has averaged 10 for the past 10 years. No antlerless hunts have been held in this herd range.

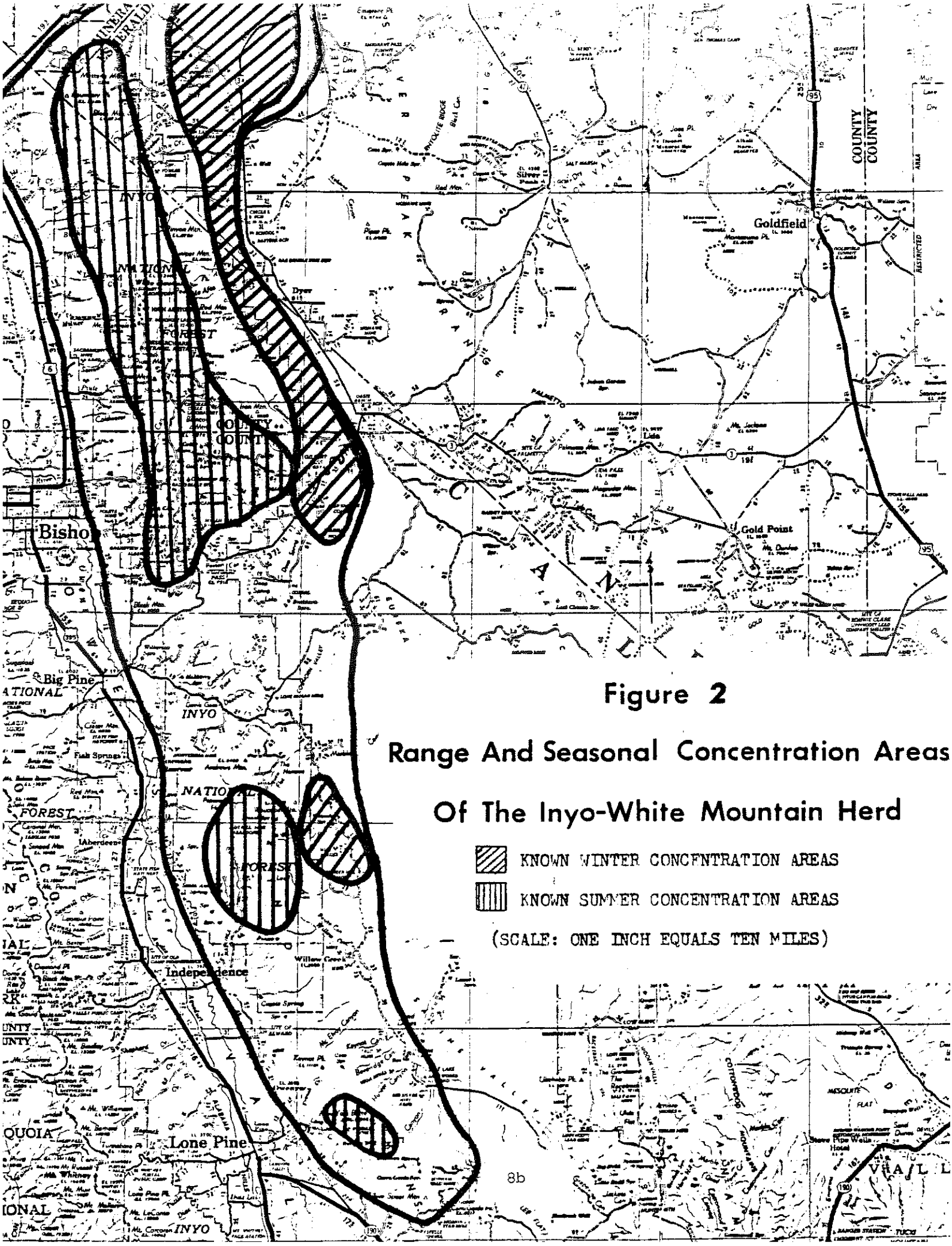

Figure 2

Range And Seasonal Concentration Areas Of The Inyo-White Mountain Herd

KNOWN WINTER CONCENTRATION AREAS

KNOWN SUMMER CONCENTRATION AREAS

(SCALE: ONE INCH EQUALS TEN MILES)

Table 1

Reported buck Harvest in the Inyo and White Mountain Ranges, in California. 1947-1984.

Year	Inyo Mountains	White mountains *	Total
1947	11	30	41
1948	-	-	-
1949	-	-	-
1950	7	-	-
1951	8	-	-
1952	1	-	-
1953	-	-	-
1954	14	-	-
1955	18	-	-
1956	11	-	-
1957	4	-	-
1958	7	9	16
1959	-	-	-
1960	13	36	49
1961	1	15	16
1962	10	30	40
1963	27	52	79
1964	17	77	94
1965	10	48	58
1966	19	75	94
1967	4	51	55
1968	13	46	59
1969	5	60	65
1970	9	48	57
1971	6	48	54
1972	20	47	67
1973	20	58	78
1974	17	57	74
1975	18	59	77
1976	12	52	64
1977	47	55	102
1978	40	83	123
1979	60	93	153
1980	46	105	151
1981	29	97	126
1982	25	63	88
1983	34	53	87
1984	17	41	58
1985	57	93	150

* Does not include Nevada kill.

Herd Sex Ratio and Age Class and Composition

No herd composition data is available for either the White or Inyo ranges. Deer in this herd are insufficiently concentrated to allow composition counting of a sufficiently large number in a reasonable amount of time by ground observers. However the rugged terrain in much of this herd range make it likely that buck ratios are higher than in adjacent herds, such as the Buttermilk (15 bucks per 100 does in 1984), or the Sherwin Grade (10 bucks per 100 does).

During years of sufficient snowfall which concentrate deer and make them more locatable, helicopter censuses are planned to provide information on herd sex ratios and winter concentration areas.

Mortality

The relative importance of various mortality factors in this herd is unknown. Based on herd composition information from nearby herds, where about 70% of the fawns die before reaching their winter ranges, it seems likely that fawn mortality is high in the Inyo and White Mountains also. It should be kept in mind that this level of fawn mortality is not unusual. With buck-only hunting, high fawn mortality is expected because the population size remains reasonably stable, fluctuating at the average carrying capacity of the range.

In addition to this probable high fawn loss on summer ranges, it is possible that substantial numbers of deer die during winters of exceptionally heavy snows. Heavy losses occurred on the nearby Buttermilk winter range during the winter of 1951-52. During this period, Jones (1953) estimated that losses were 64%

of the fawns, 23% of the adults, and 41% of the herd as whole. Although no documentation exists, winter losses due to deep snow in very exceptional years may occur in the Inyo and White Mountains as well. A major difference in winter ranges on the east slopes of these mountains compared to those of the Sierra, however, is that the Inyos and Whites are much drier, and snow depth is less.

The relative importance of predation, disease, and parasitism is unknown. Mountain lions occur in both the Inyo and White Mountains. Mountain lions are known to subsist primarily on deer (Connolly, 1981). Coyotes are common in Inyo and Mono Counties, and in other locations it has been found that deer may constitute a major portion of coyote diets (Connolly, 1981). Predation will be discussed in greater detail under a following section. No widespread disease outbreaks have been noted. Although various species of parasites have been identified in this population, no cases of extreme parasitism have been noted. With current information infectious diseases and parasitism are not considered important mortality factors.

HERD RANGE AND HISTORY

Climate and Topography

Climatic conditions vary considerably within the Inyo and White Mountains. Basically, the Inyos are much drier than the Whites. Arid conditions prevail in both ranges because of the rain shadow effect of the Sierra Nevada Mountains. Precipitation varies from about 4 inches in the lower valleys to over 20 inches (including much snow) at the top of the White Mountains. Summer high temperatures range from 80 to over 100 degrees Fahrenheit even at

the higher elevations. Winter low temperatures range from approximately freezing in Saline Valley to well below zero at White Mountain Peak.

Much of the terrain within this herd range is extremely precipitous. In fact, much of the area in the Inyo Mountains, and to a lesser extent on the west side of the White Mountains, is not used by deer because it is so steep and rocky. Elevations vary from a low of about 2,000 feet at the eastern base of the Inyo to 14,246 feet at White Mountain Peak.

Locations of Seasonal Ranges and Migration Routes

Locations of known summer and winter ranges are shown on Figure 2. These boundaries were derived from DFG spot kill maps and knowledge of local wardens and biologists. Once the planned helicopter surveys are completed, much more information will be available concerning both winter range delineation and herd composition. As with most deer herds, summer ranges are typically at high elevations and winter ranges at lower elevations. On much of the White Mountains, snow is too deep and temperatures too low at higher elevations to serve as deer winter range. To a lesser extent, this is also the case with the Inyos. In addition to temperatures and snow conditions at low elevations being more favorable to wintering deer, it is typical for these deer to move down much lower than would be required by weather conditions alone. This movement is most pronounced in the early spring, and is presumably to take advantage of succulent forage in the desert scrub zone. Examples of locations where this low elevation springtime use occurs, particularly following wet winters, are

the northwestern edge of Eureka Valley, the area north of Piper Mountain, and east of Waucoba Spring. In some lower elevations,lack of water sources appears to limit deer numbers.

Summer use for the most part occurs at high elevations in both the Inyo and White Mountains. In the Inyos, hunter kill information indicates that the Waucoba Mountain area has the greatest concentration of deer. In the White Mountains, most deer are taken near the top of the southern half of the range where access is good. Also, limited field surveys indicate that most deer summer at high elevations in the Whites, either on the open expanses on the top or at the heads of drainages.

However, it is known that summer deer use also occurs at lower elevations in both ranges, particularly along drainages with year-round streams or springs. For example, some summer use can be found below the pinyon belt along many drainages on the east side of the White Mountains.

No major migration routes for deer in either the Inyo or White Mountains have been delineated. Since both winter and summer ranges cover broad areas, it is likely that numerous migration routes are used by small numbers of animals. When time and funding constraints allow radio telemetry work on this herd, more will be known about migration times and routes.

Vegetation

The most complete published information on vegetation in the White Mountains is contained in "A Flora of the White Mountains, California and Nevada" (Lloyd and Mitchell, 1973). Their floristic zones will be used in this plan. Most of the deer

habitat in the Inyo Mountains occurs in some of these same vegetation types. In addition to this published flora, information was provided by Peter Rowlands, botanist with the Ridgecrest office of BLM.

Desert Scrub Zone

This habitat type occurs from the valley floors to an elevation of approximately 6,500feet. Shadscale (Atriplex confertifolia) dominates the desert scrub vegetation type at lower elevations. At upper elevations below the pinyon pine (Pinus monophylla) zone and at the north end of the White Mountains, big sagebrush (Artemisia tridentata) predominates. Other important shrub species in this zone are black sage (Artemisia nova),Morman tea (Ephedra nevadensis), allscale,(Atriplex polycarpa), rabbitbrush (Chrysothamnus teretifoliusand C.nauseosus) budsage (Artemisia spinescens) winterfat,Erotia lanata, hopsage (Grayia spinosa), Menodora spinescens, Indigo bush (Dalea fremontii), and buckwheat, (Eriogonum fasciculatum).

Common herbaceous species are desert trumpet Eriogonum inflatum, four-o'clock (Mirabilis bigelovii), prince's plume (Stanleya elata), galleta grass (Hilaria jamesii), Lygodesmia exigua, Machaeranthera sp.,squirreltail Sitanion hystrix bluegrass, (Poa sp.), and Phlox superba.

Pinyon Woodland Zone

This zone occurs at elvations of 6,500 to 9,500 feet. Pinyon pine is the dominant tree, although Utah juniper (Juniperus osteosperma) may be locally important. At some sites in the White Mountains, pinyon tree cover may reach 40%.

Big sagebrush is the most important shrub in this zone. Actually this species is common in parts of three of the four floristic zones described in these mountain ranges, occurring from 6,000 to over 10,800 feet elevation. Other important shrubs are desert bitterbrush,(Purshia glandulosa), antelope bitterbrush, (P.tridentata), Morman tea, rabbitbrush (Chrysothamnus viscidiflorus), mountain mahogany (Cercocarpus ledifolius) and (C. intricatus). Typical herbaceous species are Junegrass (Koeleria cristata), Indian rice grass (Oryzopsis hymenoides), squirreltail grass, (Phlox stansburyi) and buckwheat,(Eriogonum caespitosum).

Subalpine Forest Zone

Typically, the pinyon woodland does not contact the subalpine forest zone. Usually, treeless, sage-dominated vegetation separates the two communities. The subalpine forest zone occurs from 9,550 to 11,500 feet. The most obvious vegetation in the bristlecone-limber pine forest is Pinus lonaeva and P. flexilis. Bristlecones are the most common on dolomite soils,but may occur on sandstone and granite on north and west facing slopes. The distribution of limber pine is often the same as that of bristlecone, but limber pine is most common on granite soil, and is seldom found above 11,000 feet. Bristlecones extend to at least 11,500 feet elevation.

Sagebrush is the dominant shrub of this zone. Others are creambush (Holodiscus microphyllus), fernbush (Chamaebatiaria millefolium), squaw current (Ribes cereum), and mountain mahogony. Herbaceous species include wild daisy (Erigeron clokeyi),

sandwort (Arenaria kingii), buckwheat (Eriogonum gracilipes), and Haplopappus acaulis.

In the White Mountains, the subalpine zone also contains groves of aspen (Populus tremuloides). Most of these aspen groves are located on wetter sites on the east slope. In many area, aspen groves are considered of major importance to deer , both as escape cover and fawning habitat.

Alpine Tundra Zone.

This zone occurs in the White Mountains from 11,500 to 14,246' (the height of White Mountain Peak). It is generally considered to be the vegetation zone above the limits of tree growth. In the White Mountains, however, soil types also have a strong influence on plant distribution, in addition to effects of elevation. One of the most common plant communities in this zone is the dolomitic barren vegetation. Usually the plant cover is less than 10% Two predominant species are buckwheat (Eriogonum gracilipes) and Phlox covillei. The alpine fellfield is another widely represented community that occurs on granitic soils above 12,000 feet. A predominant species here is clover (Trifolium monoense).

Riparian Vegetation

Riparian vegetation exists within at least the lower three of these basic floristic zones, and is generally considered to be of major importance to deer. All permanent streams and springs support riparian vegetation. At lower elevations, cottonwoods, (Populus trichocarpa) and willows (Salix sp.) are common.

In the pinyon woodland zone, riparian vegetation typically

includes willows, birch (Betula occidentalis), and rose (Rosa woodsia).

In the subalpine forest zone, in addition to the riparian species listed above, substantial groves of aspen occur in the White Mountains. In this case, aspen is not strictly riparian, since it also occurs some distance from stream-courses, mostly on the eastern slope in moist sites. No aspens occur in the Inyo Mountains.

Water Distribution

Most major drainages on both the east and west sides of the White Mountains have flowing streams, and springs often occur at high elevations, well above tree line.

Water is much more limited in the Inyo Mountains and extreme southern portion of the Whites, particularly at higher elevations in suitable deer habitat. Although a number of canyons on the east side of the southern Inyos have flowing streams, these normally occur below the pinyon zone, and often in very precipitous terrain. Infrequent water at high elevations, and in less precipitous low elevation areas, appears to be an important limiting factor to deer populations in the Inyo Mountains. Water needs of deer, and plans to increase water sources, will be discussed under sections on factors regulating the population and management programs.

Land Ownership

Over 95% of the land comprising deer habitat in these mountain ranges is owned by the federal government, administered by either the U.S. Forest Service(USFS) or Bureau of Land Management (BLM).

Fire History

According to USFS records, there is no evidence of substantial fires occurring for the past several decades in either the White or Inyo Mountain ranges, with the exception of one fire near the south fork of Indian Creek that occurred about 10 years ago. However, small lightning-caused fires are common.

Livestock Grazing

Like most other areas of public lands, the Inyo and White Mountains were once grazed more heavily than they are currently. For example, USFS records show that, from 1923 to 1933, 40,000 sheep were grazed in the White Mountains. No sheep grazing occurs there today.

Currently, virtually all areas that might be considered suitable for livestock grazing are within cattle allotments. In the White Mountains, all areas on the east slope, on either BLM or USFS land, are within an allotment. Since the west slope is much more precipitous, allotments exist only at lower elevations. A smaller portion of the Inyo Mountains is allotted. This is because of steep terrain and lack of water.

Figure 3 shows the locations of allotments. Table 2 summarizes use. Presently, the 6 allotments that exist within the Inyos total approximately 850 animal months (AMs), and cover about 124 square miles. In the White Mountains, there are at least portions of 25 allotments that total about 8,960 AMs, and cover about 644 square miles.

Effects of livestock grazing on deer habitat will be discussed under the section on competition.

Logging, Mining, and Agriculture

Although logging does not occur now in the Whites or Inyos (other than cutting dead trees for fuel wood), it occurred before the turn of the century in both ranges. Logging of the limited lodgepole groves on the east slope of the White Mountains was done to obtain mining timbers. Much logging of pinyon pine on the west slopes of both the Whites and Inyos occurred to supply fuel for the Carson and Colorado Railroad, which once ran through the Owens Valley. In addition, logging for any available trees for mine timbers, dwellings, and fuel wood occurred around all of the numerous mining camps and towns that once existed in both ranges. There is no evidence that this logging nearly a century ago has any significant effect on deer habitat today.

Mining was once very extensive in both the Inyo and White Mountains. Before 1900, there were numerous settlements at mine sites that no longer exist today. Some locations of past settlements in the Inyos are Beveridge Canyon, Mazourka Canyon, and Cerro Gordo. In the Whites, there were substantial settlements in Black, Poleta, Redding, Silver, Jeffery, Lone Tree, Queens, Cottonwood, and Wyman Canyons. In addition, there were dozens of smaller mine sites with only a few people. At the peak of mining activity, it is estimated that there were several thousand people living in these ranges. Certainly this number of people, at a time when there were no hunting regulations, could be expected to have a substantial effect on wildlife populations. No documentation of this is available, however.

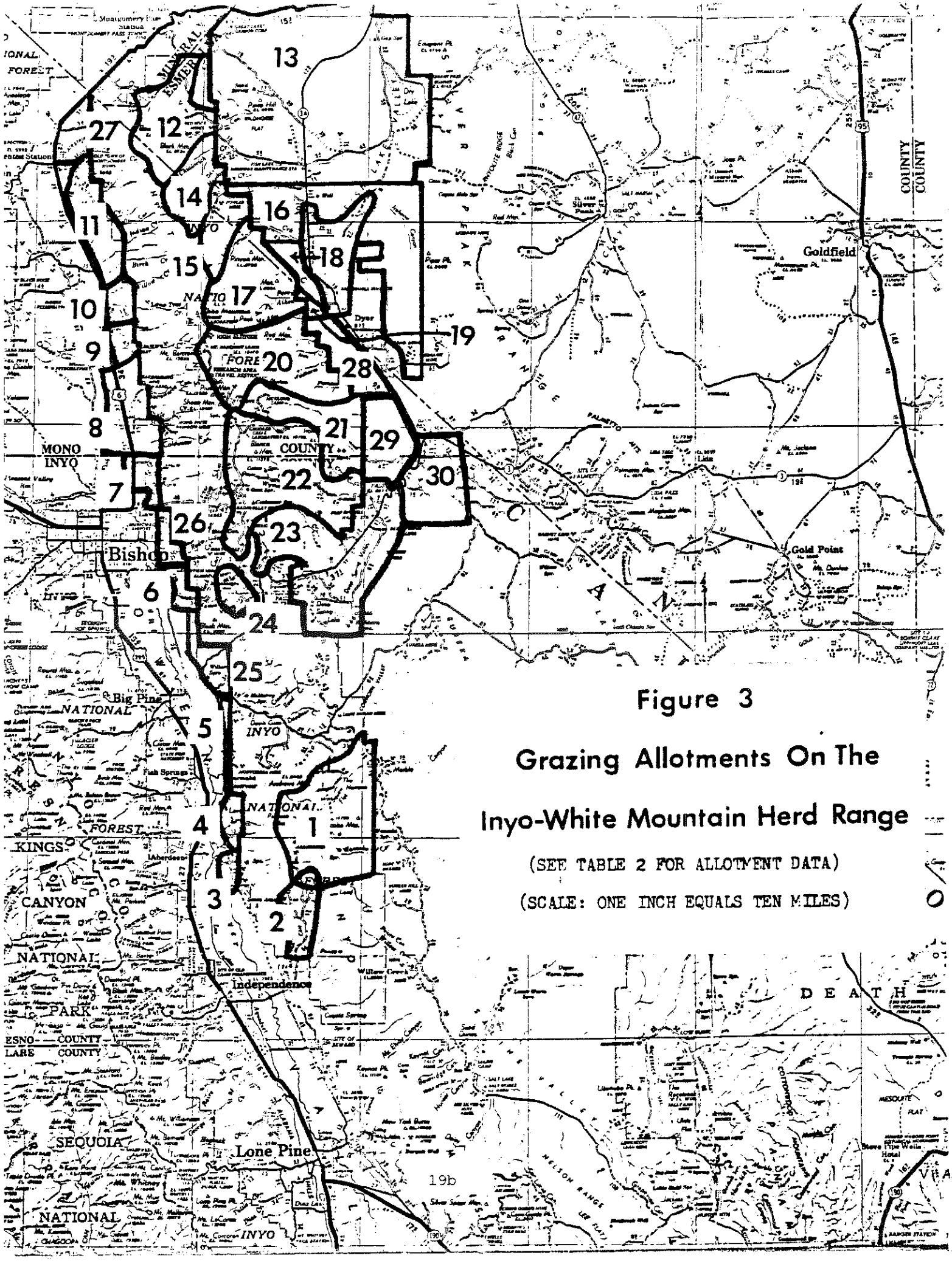

Figure 3

Grazing Allotments On The Inyo-White Mountain Herd Range

(SEE TABLE 2 FOR ALLOTMENT DATA)

(SCALE: ONE INCH EQUALS TEN MILES)

Table 2

Livestock use on the Inyo-White Mountains deer herd range.

	Allotment Name	Government Agency	Number of AMs	Time of Use	Approx Size (Acres)
1.	Waucoba	USFS	105	7/16-9/30	53,000
2.	Mazourka Canyon	USFS	52	6/ 1-7/15	12,300
3.	Black Mine	BLM	47	Unspecified	1,650
4.	Aberdeen	BLM	231	12/1-5/31	4,300
5.	Tinemaha	BLM	220	Unspecified	3,600
6.	Owens Valley	BLM	116	Unspecified	1,600
7.	Laws	BLM	143	10/1-5/15	3,000
8.	Chalfant Valley	BLM	399	10/1-5/15	6,500
9.	Jeffrey	BLM	257	10/1-5/15	4,350
10.	Lone Tree	BLM	301	10/1-5/15	12,000
11.	Marble Creek	BLM	845	Unspecified	2,000
12.	Trail Canyon	USFS	150	7/1 -9/15	25,000
13.	Red Spring	BLM	236	5/15-9/14	45,000*
			140	5/15-6/30	
			465	10/1-12/31	
14.	Davis Creek	USFS	300	7/1 -9/15	12,000
15.	Indian Creek	USFS	300	7/1 -9/15	15,000
16.	Ice House	BLM	81	5/1 -9/30	11,500*
17.	Perry Aiken	USFS	312	7/1 -9/15	30,000
18.	Silver Peak	BLM	25	Unspecified	4,500*
19.	Fish Lake Valley	BLM	39	10/1-12/31	1,500
20.	Tres Plumas	USFS	250	7/1 -9/15	42,000
21.	Cottonwood Creek	USFS	500	7/1 -9/15	30,000
22.	Crooked Creek	USFS	688	7/1 -9/15	42,000
23.	Deep Springs	USFS	40	6/1 -7/1	12,000
		BLM	1,250	1/1 -5/31	44,000
24.	Montenegro Spring	USFS	75	6/1 -9/1	8,000
25.	Zurich	BLM	392	11/1-4/30	8,800
26.	Poleta	BLM	100	Unspecified	2,300
27.	Bramlette	BLM	311	10/1-2/28	10,700
28.	White Wolf	BLM	306	4/15-6/30 and 9/23-12/15	13,200
29.	Oasis Ranch	BLM	656	4/1 -9/30	22,500
30.	South Oasis	BLM	477	3/1 -11/30	15,500
	Totals		9,809		502,800

* (Some acreage and AM figures are aproximations for those portions of the allotment occurring within the deer herd range.)

As far as deer populations are concerned, it is unlikely that there are any remaining effects of exploitation that occurred during past mining days.

There is very limited agriculture within the range of this deer herd. The only farming is alfalfa growing in Deep Springs, Chalfant, and Hammil Valleys; all areas at the edges of the winter ranges. No crop depredation problems have been reported.

MAJOR FACTORS REGULATING THE POPULATION

Weather

Effects of weather on this herd have not been documented. In the general area, extremely heavy snowfall has been reported in a number of years, dating back to 1870. As explained in a previous section, in nearby herds mortality due to deep snow has been substantial in some exceptional winters. For example, the winter of 1951-52 was an exceptionally severe one. Large numbers of deer carcasses were found in a survey of several eastern Sierra winter ranges, including 104 on the Buttermilk winter range west of Bishop. It was estimated that the Buttermilk herd lost 41% of its population during this harsh winter.

Deleterious effects of deep snow on deer in the Inyo and White Mountains are unknown, but winter kills have probably occurred in populations that inhabit the west slopes, particularly in the White Mountains. Those that winter on the east slopes (this apparently includes most deer in the White Mountains) probably have not experienced substantial winter losses, even in exceptional snow years. These animals can move down to low

elevations in Saline, Eureka, and Fish Lake Valleys which seldom get long-lasting, deep snows. Wet winters with relatively high snowfall are probably beneficial to these deer, particularly those in the Inyo Mountains. Based on forage production data from nearby herds, we can assume that wet winters produce more abundant forage on the Inyo-White Mountain ranges as well, and likely are followed by substantial increases in fawn survival.

Competition

As stated above, no area of the eastern slope of the White Mountains is not within a cattle allotment. Although grazing does not occur on a large percentage of several allotments, cattle use is concentrated along stream courses and other sites of succulent vegetation. These same succulent species (grasses and forbs) have been shown to be preferred by deer in numerous other localities (Wallmo and Regelin 1981, and Short 1981) during certain seasons.

The importance of competition from cattle can be expected to be greatest during spring, when nutritional needs of deer (particularly pregnant does) are highest. Studies conducted with whitetails have shown that poorly nourished deer had very low fawn survival, compared to those on high quality diets (Short 1981).

In addition to competing for the best forage, cattle may be detrimental to fawn survival in other ways. Riparian areas are known to be important fawning sites (Ashcraft 1977, Leopold et

al. 1951). In these sites, water, suitable hiding cover, and high quality forage are in close proximity, and successful fawn rearing has the greatest chance of occurring. On the west slope of the Sierra, cattle have been shown to displace does from meadows and riparian areas by their presence alone (Ashcraft 1977). Also, once cattle have been in such locations for a period of time, depletion of forage and hiding cover make it less likely that a fawn will escape predation (Mackie 1981).

It is not known to what extent cattle grazing in the White and Inyo Mountains limits deer numbers, even though (in addition to the above examples of competition on fawning sites) researchers in other locations have found deer production to be substantially lower in grazed than ungrazed areas (McCulloch 1955, Gallizioli 1977, McMahan and Ramsey 1965). Realistically, the likelihood of allotment reduction to increase deer populations is extremely remote, unless it could be shown conclusively that cattle grazing in these specific locations substantially reduces deer survival. Probably the most logical way of determining effects of livestock grazing on fawn production would be to contrast deer numbers on grazed and ungrazed areas on the larger riparian/meadow habitat in the White Mountains. Since no such ungrazed habitat exists, a comparison is not possible. Also, under the current administration, federal land management agencies have been encouraged to increase rather than decrease grazing on public lands.

Feral ungulates that are potential competitors with deer in this herd range are wild horses and burros. Bighorn sheep are also

potential competitors. Horses occur in small portions of both mountain ranges, but not in numbers large enough to be important competitors with deer. Bighorn also occur in both ranges, but the total population is probably less than 200 animals, so competition with deer is not a concern. Until recently, burros existed in large numbers in Saline Valley, and ranged over sizeable portions of the eastern slope of the Inyo Mountains. Certainly the possibility existed that burros were important competitors with deer in this area, although this was never documented. During 1981, 1585 burros were removed by the BLM from Saline Valley, reducing the likelihood of extensive competition. Three hundred of these were removed from near Waucoba Spring, one of the areas of greatest deer use in the Inyo Mountains. A burro population still exists near Waucoba Spring, however, and can be expected to increase in the future.

Predation

No studies of predation on deer have been done in the Inyo or White Mountains. Based on information from work done in other locations, it is reasonable to assume that predation may play an important role in regulating the population. Longhurst (1976) estimated that over 150 fawns are born per 100 does in migratory herds in California. Although no herd composition figures are available for the Inyo or White Mountains, the number of fawns per 100 does arriving on the winter range of the nearby Buttermilk herd averages about 40. If fawn survival in the Inyo and White Mountains is similar, it is quite likely that mountain lions and coyotes take a substantial number of deer each year, particularly fawns.

Numerous studies, in California and elsewhere, have shown that predators take many apparently healthy fawns from study populations. A study of fawn mortality in the North King's deer herd found that, of 14 fawns monitored, 8 did not survive the summer period, and 4 of these were killed by mountain lions. (Neal, 1981). Siperek (1982) found that lions killed 6 of 52 radio-collared deer in Tehama County.

Data collected from the west slope of the Sierra in the 1940s indicated that the highest predation on deer by coyotes occurred during spring and summer (when fawns were available as prey or carrion), when it made up 19% of coyote diets (Ferral, et al. 1953).

There are cases where coyote control has greatly increased fawn survival. In a study at Fort Sill, Oklahoma, Stout (1982) showed that removal of coyotes from 3 study sites increased fawn survival an average of 154%.

Although it seems possible that a sufficiently wide-spread predator control program would increase fawn survival, at least temporarily, it is not being suggested at present for a number of reasons. Predator control for increased deer numbers has not been practiced by the DFG for many years. Although current Fish and Game Commission policy provides for predator control to increase deer numbers, public opinion may be strongly opposed to such a practice, particularly on public land. The USFS also recognizes the value of all wildlife species, including predators, and would not allow extensive predator control on National Forest lands without proof of the necessity and without substantial public support. An additional objection to a predator control program in the Inyo and White Mountains would be its expense.

Such a program (trapping and/or poisoning) would be very expensive in this rugged terrain.

Although these constraints make future predator control for increased fawn survival unlikely, it is not out of the question. Coyote control for increased antelope and deer production is currently occurring on public lands in Arizona and Oregon (Ronald Thompson, USFWS, Animal Damage Control, personal communication).

Habitat

Habitat limitations (quantity and quality of food, water, and cover) are doubtless important factors in regulating deer numbers in the Inyo-White Mountain herd. This is true of most deer herds thoughout the state (Longhurst, et al. 1976). In a sense, this is the case even though predators may be the immediate cause of deer mortalities. For example, it has been shown on the west slope of the Sierra that only in certain habitat types will fawns often escape predation (Ashcraft 1977). Since does about to fawn or with young fawns are somewhat territorial, a lack of sufficient fawning sites containing food, water, and concealing cover in close proximity may limit the number of fawns that can be expected to survive in a given area. Other habitat limitations may be a lack of sufficient high-quality forage on winter and summer ranges. No information is available on quality of seasonal ranges.

Although it is known that small deer populations may occur where no permanent water exists, in most instances water is necessary, at least during the summer months (Wallmo 1981). Portions of the Inyo Mountains that appear otherwise suitable for deer may

support higher populations if permanent water can be developed there. Water development plans are explained under "Management Programs."

Because virtually all deer habitat in both mountain ranges is managed by either BLM or the USFS, residential or commercial development is not a threat in the forseeable future.

Hunting and Illegal Take

At the present level, hunting is most likely not a major factor controlling the population size of this deer herd, although it very likely substantially alters the buck:doe ratio.

The level of illegal take is unknown, but may be substantial within the Nevada portion of the White Mountains. Available information indicates that within California, the number of illegally taken deer from this herd is small, compared to that from some other locations within the state. This is presumably due to low deer numbers and, more importantly, the low number of people living in Inyo and Mono counties. Even though these same circumstances exist within Nevada, Nevada Deptartment of Wildlife personnel feel that concentrated poaching by a small number of individuals greatly exceeds the legal take.

MANAGEMENT UNIT GOALS

The statewide plan for the management of deer in California has general goals of maintaining healthy deer herds and providing for high quality, diversified use of deer. Goals for the Inyo-White Mountain herd will conform to these general goals, bubut will be more specific, based on the characteristics of this herd and its range.

No actual count of deer in the Inyo or White Mountains has been done. Because of the length of these ranges (approximately 100 miles), it is hoped that sufficient helicopter time will be made available to conduct a complete winter census. In addition, such a census would have to be done when there was an unusually heavy snow cover, when tracks are obvious and deer are forced down below the elevation of pinyon pines.

Although a total count may never be possible, helicopter use during times of heavy snow cover should yield adequate data on herd composition. Consequently, the herd goal will be expressed as a buck ratio. Pending further information on this herd, a buck ratio of 25 per 100 does is considered desirable. Information on current buck ratios will be available once planned helicopter herd composition counts are completed.

Since virtually all of the range of the Inyo-White Mountain deer herd is within public ownership (BLM and Inyo National Forest), the goal for the herd range is to maintain the current land ownership status, improve habitat conditions where possible, and prevent deleterious impacts from future land uses. Potential habitat improvement techniques will be discussed under the section on "Management Programs, Objectives and Recommended Prescriptions."

PROBLEMS AND CONSTRAINTS IN HERD MANAGEMENT

This section identifies major problems and limitations relating to management of the Inyo-White Mountain herd and its habitat.

1. Fawn survival will not be known until planned helicopter composition counts are done. However, based on extensive information from nearby herds, it is likely that the majority of

fawns that are born die before migration to winter ranges. Causes of fawn loss have not been determined.

2. Even if predation is determined to be the major cause of fawn loss on summer ranges, control of predators does not appear to be a viable option for a number of reasons.

3. Current grazing management by the USFS may reduce fawn survival. Changing these policies is politically difficult.

MANAGEMENT PROGRAMS, OBJECTIVE, AND RECOMMENDED PRESCRIPTIONS

Inventory and Investigation Element

Objectives: Collect information that allows for effective management of the Inyo-White Mountain herd. This will include information on numbers and composition, and locations of important seasonal ranges.

Recommended Prescriptions

1. Determine the composition of this herd and the location of key winter concentration areas using at least 12 hours of helicopter time at least every other year. This time must be budgeted well in advance, so that a helicopter can be called to the area quickly when conditions are appropriate. It should be recognized that in some winters there will never be sufficient snow to locate a large number of deer with this amount of helicopter time. If sufficient snow cover does not occur during a planned census year, the census may be postponed until the following year.

2. As other work commitments allow, investigation of current fawning sites and summer use areas will be made, and these habitats will be compared relative to cattle grazing and other land uses. If it appears possible that grazing policies might be

changed to benefit deer, a study project will be planned to determine effects of cattle use on fawning habitat. This might consist of eliminating grazing in one drainage that has an extensive acreage of meadow and riparian habitat, allowing time for the recovery of the vegetation, then comparing deer use in the ungrazed area with that which existed before grazing was eliminated.

3. If time and funding are available, deer will be captured on winter ranges and fitted with telemetry collars. Monitoring of collared deer will help delineate seasonal use areas, migration routes, and times of movements. This work also would be important in documenting fawning sites.

4. All potential sites for water development to benefit wildlife in the Inyo Mountains will be considered. A concerted attempt will be made to discover new sites in water-deficient areas.

Habitat Element

Objective: Preserve existing habitat against development and improve habitat as methods become available.

Recommended Prescriptions

1. The values of habitat for deer will be given full importance in all land management decisions having potentially adverse impacts on deer populations.

Specifically:

a. Increases in grazing should not be allowed where such increases are shown to be detrimental to deer habitat, and reductions in levels or changes in grazing schedules will be examined by land management agencies if conflicts with deer are

identified. The possibility of removing cattle entirely from one drainage to determine effects on deer use will be seriously considered, once migration patterns and deer numbers are determined.

b. New roads or trails into important deer areas should not be allowed, where such roads or trails are shown to be detrimental to deer use.

c. Residential development or agriculture should not be permitted where these activities might substantially affect areas used significantly by deer. Once important winter ranges have been identified, efforts will be made to see that this information is included in general plans of Inyo and Mono Counties.

d. Mining activities will be coordinated to reflect concern for deer.

e. Hydro-electric projects will be planned to avoid adverse impacts on deer habitat.

2. Water sources for deer and other wildlife should be developed in suitable areas in the Inyo Mountains. This will be done by either some sort of water catchment or use of a horizontal well machine. The area east of Whippoorwill Flat is one area where catchments may prove valuable in extending deer range. Another is at high elevations in that portion of the Inyos extending east of Deep Springs Valley.

Utilization Element

Objective: Maintain buck ratios of 25 per 100 does. Allow as much hunting as possible within this constraint

Recommended Prescription

1. Zone boundaries will be changed as needed. Beginning in 1985, the Inyo Mountains were deleted from Zone X-9 and included in Zone D-17. This was to reduce hunter pressure in the Inyos. This regulation change will be monitored to determine its effects. Thus far, however, it appears that the new zone has actually increased hunting pressure in the Inyo Mountains. Obviously, any existing hunting regulations or proposals for regulation changes in California apply only to California, and do not affect the northern portion of the White Mountains in Nevada.

Law Enforcement Element

The level of illegal kill in the Inyo Mountains and California portion of the White Mountains is not thought to be high. Currently, a substantial amount of patrol effort is expended in locations of known hunter concentrations during the hunting season, and additional effort is expended during the months of November through February, to monitor the activities of fur trappers and to prevent illegal take of deer.

Objective: Prevent poaching to the extent possible.

Recommended Prescriptions

1. Patrol effort will be continued to assure as little poaching as possible. When routine patrol or citizen reports indicate illegal kill is occurring, patrol will be increased in that

location.

2. The CalTip toll free phone in the secret witness program will be publicized. (800-952-5400).

Mortality Control Element

As discussed previously, mortality control depends largely on providing appropriate habitat. Although predators may take a large number of fawns, this may be, at least partially, a reflection of fawning habitat limitations. Given present knowledge the greatest likelihood for increasing fawn survival is elimination of grazing on riparian habitat. It is not known for certain that elimination of grazing in this particular area would improve habitat so that substantially more fawns would survive, but this is a reasonable assumption based on data from other locations. If the USFS grazing policies change, or if the proposal to eliminate cattle from one drainage as an experiment is accepted, the potential for an increase in survival of fawns in the herd may improve. Controlling the predators that probably take a substantial number of fawns is not practical under present circumstances, and would not be supported by the USFS or BLM without strong public support. Public sentiment probably would not be in favor of predator control on public lands to increase the number of deer in the hunter's bag. Although mountain lions could be controlled by hunting with dogs, it is likely that the only means of controlling coyotes would be with a wide-spread poisoning or trapping program, which would be very expensive.

Consequently, based on current knowledge, the most likely possibility for an increase in fawn survival is the elimination

of cattle grazing. This is obviously an unrealistic expectation. Until present circumstances change or new knowledge is gained, the present level of fawn mortality can be expected to continue.

Communication of Information Element

Objective: Increase the amount of information distributed to the public regarding the Inyo-White Mountain and nearby deer herds, so they can gain a better understanding of options available in the management of deer populations and habitat.

Recommended Prescriptions

1. Presentations on this and other herds will be given to local groups, in response to public interest.

2. Public seminars on management alternatives and habitat requirements of deer will be held.

Review amd Update

Objective: The Inyo-White Mountain herd plan will be reviewed and updated as necessary.

Recommended Prescriptions

1. Input from the Department of Fish and Game, Inyo National Forest, Bureau of Land Management and members of the public will be sought continually, and will be incorporated into the plan as additional information becomes available.

ALTERNATIVE MANAGEMENT ACTIONS CONSIDERED

In any aspect of natural resource management, different values and opinions inevitably lead to different ideas about goals and programs for managing biological resources. This section discusses three basic management alternatives to the recommended objectives and prescriptions presented here, and the reasons for not choosing these alternatives.

1. No Hunting

Under this alternative, hunting would be discontinued on all portions of the Inyo and White Mountains within California. The total deer population would be expected to remain essentially the same. The buck ratio would increase, however. Fawn ratios might decrease slightly because of increased intraspecific competition. This alternative would cause the loss of an important recreational opportunity that is highly valued. The local economy would suffer a loss of money that is now brought in by hunters from out of the area. A "no hunting" alternative would not conform to current Department of Fish and Game policy, and would generate a considerable amount of local and statewide opposition.

2. Elimination of consideration of deer in agency management practices

Under this alternative, value of deer habitat would be given no consideration by the BLM and USFS. Other land uses would be given priority over the maintenance of productive wildlife habitat. Grazing levels would be allowed to increase. This alternative would be the most distructive one for this herd. Population levels would decline, perhaps dramatically, depending on the level of conflicting land uses allowed. This would be contrary to DFG policy and contrary to the multiple use policies of the land management agencies involved.

3. Manage habitat for maximum deer numbers

Under an alternative of managing for maximum deer numbers, policies of the USFS and BLM would have to be changed.

Deer habitat would receive priority over other land uses. No grazing would be permitted. Predators would be eliminated. Obviously, this alternative also would be conrary to management policies of the land management agencies.

State of California

The Resources Agency

Memorandum

Date : September 15, 1986

: Earl Lauppe
Region 5, Long Beach

From : Department of Fish and Game - Tom Blankinship

Subject: Update of Inyo-White Mountains Deer Herd Plan.

The following is updated information for this herd plan. No major changes are included.

I. Update of Biological Data

Page 8 (Hunting Harvest). First two sentences should read "Reported buck harvest in the Inyo and White Mountains from 1947 through 1985 is shown in Table 1. Data on buck take for both ranges is available from 1960 to 1985."

Table 1. Reported buck harvest. Should be changed as shown in the enclosed page.

II. Update of Habitat Improvement Projects. No change

III. Other Major Changes.

Page 31. (Habitat Element, Section C). The second sentence should be changed to read "Once important winter ranges have been identified, efforts will be made to see that this information is included in general plans of Inyo and Mono counties."

Page 32 (Utilization Element, Recommended Prescription). A sentence should be added after "effects" that reads as follows. "Thus far, however, it appears that the new zone has actually increased hunting pressure in the Inyo Mountains."

Tom Blankinship
Wildlife Biologist

cc: file, J. M. Davis

Table 1.

Reported buck Harvest in the Inyo and White Mountain Ranges, in California. 1947-1984.

Year	Inyo Mountains	White mountains,*	Total
1947	11	30	41
1948	-	-	-
1949	-	-	-
1950	7	-	-
1951	8	-	-
1952	1	-	-
1953	-	-	-
1954	14	-	-
1955	18	-	-
1956	11	-	-
1957	4	-	-
1958	7	9	16
1959	-	-	-
1960	13	36	49
1961	1	15	16
1962	10	30	40
1963	27	52	79
1964	17	77	94
1965	10	48	58
1966	19	75	94
1967	4	51	55
1968	13	46	59
1969	5	60	65
1970	9	48	57
1971	6	48	54
1972	20	47	67
1973	20	58	78
1974	17	57	74
1975	18	59	77
1976	12	52	64
1977	47	55	102
1978	40	83	123
1979	60	93	153

State of California

The Resources Agency

Memorandum

To : Wildlife Management

Date : September 24, 1987

From : Department of Fish and Game

Ron Thomas

Subject : White Mountain Deer Herd Plan Update - 1986

I. For the first time, substantial efforts were made to collect herd composition data in the White Mountains.

Composition Count (Fall Only)

Year	Fall Bucks/ 100 Does	Fall Fawns/ 100 Does	Sample Size
1986	16	62	312

II. No habitat improvement projects were undertaken.

III. Plan Changes: The White Mountain herd is proposed to be included in the new zone X-9B; effective in 1987.

Ron Thomas

Ron Thomas
Wildlife Biologist

cc: V. Bleich
J. Davis

State of California

The Resources Agency

Memorandum

To : Wildlife Management Supervisor, Region 5

Date : November 8, 1988

From : Department of Fish and Game - Inyo Unit Manager

Subject : Update of the Inyo-White Mountains Deer Herd Plan.

The following is updated information for this herd plan. No major changes are included.

I. Biological Data

A. Buck Harvest

Year	Inyo Mountains	White Mountains *	Total
1984	17	41	58
1985	57	93	150
1986	42	27	69
1987	89	31	120

*Does not include Nevada kill

B. Herd Composition Counts

No post-hunt herd composition count was done this year. The counts are done on an every other year basis and are scheduled for January 1989. This range is typical of deer populations being scattered throughout the range and are not concentrated which makes counts hard to take. Weather plays a major role in concentrating the deer herds, which makes January a prime time for counts.

II. Habitat Improvement Projects

No major or new habitat improvements were undertaken.

III. Other Changes to the Deer Herd Plan

Deer Zone X-9 was divided into two deer zones (X-9a & X-9b). Total tags were 4,000 for the two zones, which was a reduction of 5,000 deer tags, reducing the hunter pressure.

No other changes are recommended at this time.

Donald W. Jacobs
Wildlife Biologist

cc: Davis and
Bleich

State of California

The Resources Agency

Memorandum

To : Wildlife Management, Region 5

Date : October 12, 1988

From : **Department of Fish and Game** --R. Thomas

Subject: White Mountain Deer Herd Plan, Annual Update 1987-88

I. No composition counts of this herd were conducted during 1987-88 due to unfavorable weather conditions.

Recent buck harvest data is:

1984	1985	1986	1987
49	51	56	31

II. No habitat improvement projects were undertaken.

III. No changes to the herd plan.

Ron Thomas

Ron Thomas
Wildlife Biologist

RT:lp

cc: J. Davis

1989 Deer Herd Management Plan Update

County: Inyo/Mono

A. Description of the Deer Herd Management Unit

1. Herd condition

Fair

a. No available information.

b. Herd health

1989 Post season fawn ratio Inyo Mountains = 21/100 does

1989 Post season fawn ratio White Mountains = 27/100 does

No spring composition counts are conducted on this herd.

No other data has been collected.

Reference: Annual winter deer herd composition counts

2. Population size

No attempt has been made to obtain an estimate of total deer numbers. Herd composition counts have only been completed twice, in 1987 and 1989. Sample sizes were much smaller in 1989, but that was more likely a function of weather conditions than a decline in herd size. More years of data will be necessary to determine a trend in population size.

3. Herd Statistics

		Harvest		Fall		Spring
	Year	Bucks	Antlerless	Bucks	Fawns	Fawns
Whites	1989	-	-	26	27	No sample
	1989	35	-	No sample		No sample
	1987	64	-	16	62	No sample
Inyos	1989	-	-	17	21	No sample
	1988	41	-	No sample		No sample
	1987	47	-	26	74	No sample

4. Deer hunting

a. Past and current hunting strategies' effects on:

1. Deer numbers

No population estimates for this hard have been made; therefore, we don't have any data to demonstrate any trends in deer numbers. However, local wardens and residents claim there are fewer deer than there used to be.

2. Herd composition

It appears that the addition of the Zone D-17 of the Inyo Mountains has increased buck kill and hunter pressure, and has therefore contributed to a decline in the buck ratio.

3. Herd health

If the current hunting strategy were to continue and the buck ratio continue to decline, it is possible the buck ratio could get so low that herd health is compromised. However, no evidence exists to show that this is occurring now.

b. Future and proposed hunting strategies' effects on:

1. Deer numbers

The proposed split of Inyo out of D-17 will allow us to regulate the number of bucks taken in the Inyo if we determine that deer numbers are suffering.

2. Herd composition

Proposed creation of new zone (removal of Inyo from D-17) and corresponding reduction in tags should alleviate the pressure on bucks and allow the ratio to reach the stated plan goal of 25/100 does.

3. Herd health

If a decline in herd health is noted with the new zone, we can manage hunting in the Inyo better than with the current situation.

5. Illegal harvest

Poaching does not seem to be a problem regulating the population at this time, although it undoubtedly does occur.

B. Non-human Effects on Deer

1. Weather

a. Drought

Forage is in extremely limited supply. Deer also concentrate near reliable sources of water, making them more vulnerable to hunters.

b. Early storms

Early storms probably benefit this herd by alleviating drought conditions. These deer are accessible to hunters on their summer range, early storms do not drive them down onto areas where they are more vulnerable to hunters. In fact, early storms would allow them to disperse.

c. Mild winters

If precipitation is not adequate to provide for growth of forage, mild winters negatively impact the herd.

2. Predators

No specific data has been collected. Reports of mountain lion sightings in this herd range are not uncommon. However, fawning cover could be a limiting factor as this herd's summer range is heavily grazed by cattle.

3. Disease and parasitism

No information.

C. Effects of Current Deer Hunting and Proposed Hunting Strategies on Other Species

1. Effects Upon Species of Special Concern

Five State or Federally listed animal species and two State-listed rare plants occur or could occur in the Inyo and White Mountains. These are the wolverine, Gulo gulo, State Endangered; Swainson's hawk, Buteo swainsoni, State Threatened; black toad, Bufo exsul, State Threatened; southern bald eagle, Haliaeetus leucocephalus leucocephalus, State Endangered and Federally Endangered; Paiute cutthroat trout, Salmo clarkii seleniris, Federally Endangered; bristlecone cryptantha, Crystantha roasiorium, State Rare; and July gold, Dedeckera eurekensis, State Rare. Sixteen additional bird and mammal species of

Special Concern occur or could occur in the area. They are the pale big-eared bat, Plecotus townsendii palleseens; pygmy rabbit, Brachylagus idahoensis; western white-tailed hare, Lepus townsendii townsendii; American badger, Taxidea taxus; merlin, Falco columbarius; northern harrier, Circus cyaneus; snowy plover, Charadrius alexandrinus; burrowing owl, Anthene cumicularia; northern goshawk, Accipiter gentiles; Cooper's hawk, Accipiter cooperii; sharp-shinned hawk, Accipiter striatus; golden eagle, Aquila chrysaetos; prairie falcon, Falco mexicanus; sage grouse, Centracercus phasianus; Virginia's warbler, Vernivara virginiae; and California gray-headed junco, Junco hyenalus caniceps.

None of these species would be affected by present or proposed deer hunting activity. This herd occupies a range which is nearly all public land. It receives use from other recreationists such as hikers, photographers, naturalists, skiers, etc., as well as livestock grazing. The Inyo Mountains belong to Zone D-17, which currently has 1,000 tags issued. Approximately 65% of the deer taken in the zone are taken in the Inyo. Therefore, we can assume that 65% of the hunters hunt in the Inyos. This calculates to 650 hunters spread out over a 3 week period. The Whites are in Zone X9b. The majority of the 2,500 hunters allowed in X9b hunt in the Sierra. Loss of habitat, improper livestock grazing, human disturbance from ORVs and mining pose greater threats to these species than the small proportion of hunters do.

Wolverines have been reported from the White Mountains on three occasions (NDDB). All sightings have been in the upper elevations above tree line between Mt. Barcroft and White Mountain Peak. Wolverines rely on carrion as one of the food items in their diet. It could be argued that hunting mortality replaces some of the natural mortality in the deer herd, thus leaving fewer deer carcasses in the field upon which the wolverines feed. However, the number of deer shot each year are is not likely to affect the amount of food available for wolverines, as they eat a variety of other small mammals.

The black toad is found only in the marshes around Deep Springs. DFG owns acreage there to preserve habitat for this species. It is very doubtful that deer hunters would be hunting in the marshes, therefore, no impact to the species should occur.

Swainson's hawks are found in the Owens Valley and also occur in juniper-sagebrush habitats in Great Basin Mountain ranges. They nest in or adjacent to riparian areas consisting of valley oak, cottonwood, walnut, and willow trees. They forage in open grasslands or lightly grazed pastures and alfalfa. This habitat exists in the

Owens Valley but not in the Inyos. It is possible that the dense aspen stands in the Whites could provide nesting habitat. Hunting season does not occur during nesting season, so it is extremely doubtful that hunters would negatively impact this species. Bald eagles winter in the valley and possibly forage in the Inyo/White Mountains. Threats to this species include illegal shooting. However, no incidents of illegal shooting eagles have been reported in the Inyos or the Whites. This species is primarily dependent on aquatic resources; therefore, there is no competition with hunters for food or habitat.

Paiute cutthroat trout inhabit one drainage in the White Mountains. Threats to this species are primarily improper grazing practices and competition/hybridization with other species of trout illegally planted by uninformed or well-meaning anglers. The practice of deer hunting will not likely have any affect on this species.

Bristlecone cryptantha is found in three locations in the Inyo Mountains (1988 Annual Report on the Status of California's State Listed Threatened and Endangered Species, DFG, March 1989). An ORV trail through one site is a potential threat. This ORV trail would persist with or without hunting activity. Even if hunting were discontinued, other recreational activity would continue.

July gold is found in lower elevation washes in the White Mountains. It is extremely doubtful that deer hunters use the areas in which this species occurs.

For several of the species mentioned, human disturbance is known to be a potential threat to the local population. However, the critical period is during breeding season, in spring and early summer. Since deer hunting takes place in the fall after breeding season is finished, disturbance by deer hunters is not likely to b a factor.

a. Changes in local populations

b. Changes in regional and statewide populations

The present and proposed hunting strategies have no effect on regional and statewide populations of any of the aforementioned species.

2. Effects upon other wildlife species

a. Changes in local populations

Some tule elk occasionally wander up into the Inyo Mountains where they share the range with mule deer. However, competition between deer and elk has not been documented to be a problem in California (Final

Environmental Document Regarding Tule Elk, DFG, April 1989). Potential for competition between elk and deer can exist in critical winter ranges shared by the two species; however, the majority of tule elk range in Inyo County is not shared with migratory deer. Therefore, there is no scientific evidence to indicate that removal of deer through a sport hunting program will impact the local or Statewide elk resource. The Department is funding a research program conducted by the University of California to investigate deer and elk interactions in the Goodale herd area.

Coyotes, black bears and mountain lions prey on deer. It is possible that if deer hunting were discontinued, the fawn predation would drop, reducing potential food for predators.

Nelson's bighorn sheep also occur in this mountain range. Hunting of deer does not impact the sheep population because these two species occupy totally different habitat types. Bighorn sheep are found on steep, rocky terrain with little or no dense vegetation.

b. Changes in regional and statewide populations

No effect.

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

Increased fawn production resulting from the harvest of adults could potentially provide more food for predators. These species could, in turn, have increased recruitment into their populations, changing the age class structure of the population.

d. Changes in mortality factors

No effect.

3. Changes in Public Use/Recreation

a. Hunting

Zone D-17, of which the Inyo Mountains are a part, has 1,000 tags issued. We are assuming that 65% of these tag holders (650) hunt in the Inyo. We do not know the number of X9b tag holders who hunt in the Whites. Deer hunting in this range provides a positive experience for approximately 1,000-1,500 hunters each year.

The action of deer hunting positively impacts the hunting public of the State by providing hunting opportunities consistent with Sections 332 and 3951 of the Fish and Game Code as well as the State's Wildlife Conservation policy contained in Section 1801 of the Fish and Game Code.

b. Nonconsumptive

Deer hunting in the Inyo/White Mountains will not significantly impact nonconsumptive users (viewing, nature study, photography, hiking). Most people who partake in these activities are locals and are not bothered by hunters in the field. The majority of people who like to view and photograph the large bucks go to the Goodale area while those deer are on the winter range.

4. Effects Upon Human Populations

a. Housing

The existing deer hunting program does not affect housing in the Region. All of the hunting in the Inyo/White Mountain herd takes place on public land. This land would remain in public ownership regardless of whether or not deer hunting took place on it.

b. Transportation

It is conceivable that if deer hunting were discontinued, traffic volume would decrease along Highway 395 north to Bishop and on other State highways in the project vicinity, especially on opening weekend. This decrease would be minor and probably would not affect traffic patterns in the area.

c. Public service

It is possible that local law enforcement agencies such as the County Sheriff or Police Department must beef up patrols or manpower during opening weekend when the possibility of violations is higher than the rest of the season. This would apply to DFG Wildlife Protection as well as Forest Service and Bureau of Land Management.

d. Energy

Perhaps additional gasoline is consumed by the hunters traveling away from home to hunt. However, this is a small proportion of recreationists such as hikers, backpackers and anglers.

e. Human health

Occasionally hunting-related accidents occur, but they are not numerous. These accidents can be lessened through hunter education.

f. Aesthetics

Some non-hunting members of the public are offended when they see hunters in the field. However, this only occurs three weeks of the year. Additionally, some members of the public fine it offensive to see deer carcasses strapped on top of vehicles, etc. This practice can be reduced by hunter education.

g. Cultural resources

No effect.

D. Range Landownership

Ninety-eight percent of Inyo County is held in public ownership. The Inyo and White Mountains are all owned and managed by BLM and Forest Service. No changes have occurred since preparation of the deer plan, and no changes are anticipated.

E. Range Vegetation

1. Fire

There have been no major fires in the Inyo/White Mountains herd area.

INYO-WHITE MOUNTAIN DEER HERD MANAGEMENT PLAN 1990 UPDATE

I. Update of biological data

A. Composition Counts

Year	Post-season bucks/100dd	Post-season fawns/100dd	Spring fawns	Fall sample	Spring sample
	(Due to inaccessibility of the range and the need for snow cover to conduct helicopter surveys, fall composition counts have been conducted only during two years and no spring counts attempted.)				
1986-87	16	62	--	312	--
1988-89	26	27	--	94	--
	(A substantial number of deer winter at Marble Creek at the northwest end of the White Mountain range. Telemetry studies have demonstrated that this wintering population is composed of a mix of White Mountain deer and Casa Diablo herd deer.)				
1986-87	12	65	--	145	--
1987-88	18	30	--	134	--
1989-90	19	25	23	138	161

B. Buck kill

Year	1985	1986	1987	1988	1989
	51	56	37	36	31

II. Update of habitat improvement projects for 1988 and 1989

No projects were undertaken during the report period.

III. Other changes to the herd plan

Although no data is available, the unit manager suspects that the effects of the severe current drought may be less pronounced in the White Mountains than on other deer ranges in Mono County since this high range at times receives more precipitation, particularly at the upper elevations, than other parts of the County.

State of California — The Resources Agency

MEMORANDUM

Date: January 22, 1990

Disk:DEER
Filename:Compct90.mem

To: Files

From: Department of Fish and Game -- Denyse Racine, Inyo Unit

Subject: Deer Herd Composition Counts, January 1990

Composition counts were conducted on Inyo County deer herds January 3-5, 1990. The Goodale Herd was counted on January 3, the Inyo Mountains on January 4-5, and the Buttermilk herd was counted on January 5, 1990. A Bell Jet Ranger helicopter was used, piloted by Brian Novak of Landells Aviation. Observers included Jim Davis, Denyse Racine, Tom Lipp, Ron Thomas, Jim Landells, and Charlie Vandemoer (USFS). Approximately 4 hours of helicopter time was used to survey the Goodale herd, 3.5 hours for the Buttermilk herd, and 6 hours in the Inyo Mountains. The weather was clear with light breezes. Snow cover was sparse, and deer were generally scattered at primarily upper elevations. These conditions prevented a total count in Round Valley.

This year we began surveying the Inyo Mountains at New York Butte and worked north to Highway 168. The Piper Mountain/Soldier Pass area was not surveyed due to lack of time. Very few deer could be found. Some areas, such as Squaw Springs, Squaw Flat, and Seephole Spring, had a fair amount of fresh trailing in the snow, but despite intensive surveying, we found few or no deer.

We observed two groups of bighorn sheep on the east side of the Inyos. One lone ewe was observed in the vicinity of the Craig Canyon drainage, 36°39.73, 117°53.75, in light snow cover, SW slope. Two ewes were seen near Willow Springs. Very few chukar were seen. One group was seen above Sidehill Spring, and a few were located in the Saline Range NE of Waucoba Spring.

Results of the composition counts are as follows:

Goodale Herd South (Taboose Creek to Lone Pine Creek)
SPECIAL HUNT ZONE

	Numbers	1990 Ratios	Previous (1989) Seasons Ratios	1988 Ratios
Does	152	100	100	100
Fawns	28	18	28	27
Bucks	34	22	41	47
Sample Size	214			

Antler Class of Bucks

Spikes	2	(10%)
2 pt.	7	(35%)
3 pt.	9	(45%)
4 pt.	2	(10%)
Unclassified:	14	

Goodale Herd North (Bishop Creek to Taboose Creek)

	Numbers	1990 Ratios	Previous (1989) Seasons Ratios	1988 Ratios
Does	97	100	100	100
Fawns	28	29	37	26
Bucks	44	45	22	32
Sample Size	169			

Antler Class of Bucks

Spikes	6	(14%)
2 pt.	9	(20%)
3 pt.	21	(48%)
4 pt.	8	(18%)

Goodale Herd (Total)

	Numbers	1990 Ratios	Previous (1989) Seasons Ratios	1988 Ratios
Does	249	100	100	100
Fawns	56	22	31	27
Bucks	78	31	34	43
Sample Size	383			

Antler Class of Bucks

Spikes	8	(12%)
2 pt.	16	(25%)
3 pt.	30	(47%)
4 pt.	10	(16%)
Unclassified:	14	

Buttermilk Herd

	Numbers	1990 Ratios	Previous (1989) Seasons Ratios	1988 Ratios
Does	545	100	100	100
Fawns	121	22	38	34
Bucks	68	12	15	9
Sample Size	734			

Antler Class of Bucks

Spikes	11	(16%)
2 pt.	34	(50%)
3 pt.	16	(24%)
4 pt.	7	(10%)

Inyo Mountains Herd

	Numbers	1990 Ratios	Previous (1989) Seasons Ratios	1987* Ratios
Does	41	100	100	100
Fawns	11	27	21	74
Bucks	3	7	17	26
Sample Size	55			

* Herd Plan goals call for this herd to be surveyed only every other year. The herd was surveyed this year because we are concerned with the apparent drop in buck ratios and wish to collect as much information on this herd as possible.

Sincerely,

Denyse Racine

Denyse Racine
Wildlife Biologist

State of California

The Resources Agency

MEMORANDUM

To : Mono Unit File

Date : May 27, 1991

From : Department of Fish and Game, Ron Thomas, Biologist

Subject : 1990 Deer Age Data

The following data is the result of sectioned buck teeth collected from animals taken during the 1990 hunt season in Mono County:

Zone X-12

Sample: 75

Yearling	2 yr.	3 yr.	4+ yrs.
8 (11%)	43 (57%)	20 (27%)	4 (5%)

Zone X-9A

Sample: 47

Yearling	2 yr.	3 yr.	4+ yrs.
13 (28%)	26 (55%)	5 (11%)	4 (8%)

All Mono County Herds

Sample: 122

Yearling	2 yr.	3 yr.	4+ yr.
21 (17%)	69 (57%)	25 (20%)	8 (6%)

CC: D. Paine
K. Broom
M. Walter
L. Sitton
[redacted]
Please distribute to wardens

VR 5-30-91

The preponderance of young animals in the bag reveals a relatively high rate of harvest of bucks in the herd; this evidence is supported by herd composition data which indicates a Mono County average buck ratio of 12:100 does. The low percentages of older age class animals in the bag is consistent with the relatively high harvest rates occurring; a relatively low percentage of bucks are surviving past three years of age.

Recent necropsy data indicates that all does are being bred while very low fall and spring fawn ratios in recent years reveal a high loss of fetuses and young fawns: relatively few new animals are being recruited into the populations. This fact is due to the effects of the drought on winter range forage, coupled with other factors including high predation rates (indicated by losses of telemetered animals and other field observations), known high losses to highway kills, competition with domestic livestock on key habitats, and continuing losses of critical habitats to other land uses.

Although hunter buck kill has been relatively constant, the effects of the above factors combine to create a prediction of a static or downward trend in herd populations and hunter harvests in future years. Although the return of wetter years could help to stimulate limited herd increases through increased winter range forage, the long term and cumulative impacts of the other factors may be unavoidable.

DEER KILL INYO COUNTY HERDS

YEAR	GOODALE HERD	SPECIAL BUCK HUNT	BUTTERMILK HERD	INYO MTNS HERD
1980	97	24	46	46
1981	386	24	242	29
1982	75	23	27	25
1983	85		35	34
1984	65		30	17
1985	173	45	194	57
1986	48		60	42
1987	42	20	14	47
1988	26	44	11	41
1989	20	27	20	50
1990*	29		13	21
1991***	12		**	57***
1992	20			81

* Buttermilk Herd placed in Zone X9a
** Kill now reported in Sherwin Grade/Buttermilk Herd
*** Zone X9c created; kill now includes entire zone, including White Mountains.

DEER HARVEST TREND

Year	Zone	Quota	Tag Sales	Harvest	Success Rate
1985	D-17	1000	1008	107	11%
	X-9	9000	8880	1265	14%
	XS2	50	49	45	92%
1986	D-17	1000	1000	60	6%
	X-9	9000	9000	742	8%
	XS2	No Hunt			
1987	D-17	1000	1000	89	9%
	X9B	2500	2500	245	10%
	XS2	25	25	20	8%
1988	D-17	1000	1000	78	8%
	X9B	2500	2500	190	8%
	XS2	50	50	44	88%
1989	D-17	1000	959	77	8%
	X9B	2500	2500	165	7%
	XS2	50	50	27	54%
1990	D-17	1000	1000		5.2%
	X9B	2500	2500		3.2%
	XS2	0			
1991	X9B	300	300		5%
	X9C	850	850		9%
1992	X9B	300	300		6.7%
	X9C	850	850		9.5%

Deer/Killstat/2/2/93

WHITE MOUNTAIN DEER HERD PLAN UPDATE

1993-94

I. Update of biological data

A. Composition Counts

year	Post-season bucks/100dd	Post-season fawns/100dd	Spring fawns	Fall sample	Spring sample
1986-87	16	62	--	312	--
1987-88	no counts				
1988-89	26	27	--	94	--
1989-90	no counts				
1990-91	no counts				
1991-92	19	14	--	53	--
1992-93	no counts				
1993-94	no counts				

Due to the inaccessibility of the range, the lack of deer concentrations, and the need for substantial snow cover for efficient helocopter surveys, fall counts have been conducted infrequently and no spring counts have been attempted.

A substantial number (up to 500 or more) of deer winter near Marble Creek near the north-west end of the White Mtn. range. Telemetry data has revealed that this wintering population is composed of a mix of White Mtn. deer and Casa Diablo herd deer from the Sierra. Lacking other, more specific and adequate data, composition counts of this group are reported to provide an indication of performance of the White Mtn. population.

year	Post-season bucks/100dd	Post-season fawns/100dd	Spring fawns	Fall sample	Spring sample
1986-87	12	65	--	145	--
1987-88	18	30	--	134	--
1988-89	no counts				
1989-90	19	25	23	138	161
1990-91	10	35	--	172	--
1991-92	10	29	30	120	247
1992-93	16	50	no ct.	158	--
1993-94	no animals found this survey		13/100 ad		42

B. Buck kill

Year:	1985	1986	1987	1988	1989	1990	1991	1992
	51	56	37	36	31	38	33	32

1993

unknown; no comp. data available

II. Update of habitat improvements

None during the report period

III. Other changes to the herd plan

None

To : Ken Mayer

From : Ron Thomas, Mono Unit Mgr. Date : 10/17/90

Subject : Inyo Forest Plan appeal and deer herd plan revisions

Enclosed you will find our latest draft responses to two FS responses on issues affecting mule deer. As you will see, the Forest is attempting to mandate deer plan revision in an effort to justify non-planning for deer on the federal lands. It is most important that DFG not submit to this tactic; I believe that no push for plan revision of any kind should by directed by our Dept. until resolution of our LRMP appeal.

Additionally, we are now forced to ignore many critical duties relating to habitat preservation, development projects, etc. which will cause severe permanent impacts to deer and other species. We simply don't have time to tackle additional jobs such as herd plan revisions without causing additional inattention to important activities.

Ron Thomas

Mono Unit

cc: Vern Bleich
Larry Sitton

Issue #7 : Mule Deer Management

Issue 7a: The forest's response to our stated concern is merely an obvious attempt to avoid the central issues of compliance with California's Deer Herd Management Plans and the lack of suitable LMP emphasis on the valued mule deer resource. The response indicates that the Forest would prefer to modify or weaken the goals of the State's legislatively-mandated plans rather than to pursue a good faith effort to manage for deer on federal lands pursuant to the existing signatory commitment.

While we do not disagree with the USFS listing of their own agency's plans "Incorporated With Direction To Update", the existing Deer Herd Plans are in no need of substantive revision, and the eleventh hour suggestion by the Forest to revise is patently inappropriate, since the Forest has no authority to dictate such revision of these State documents. The Forest's response on this issue is unacceptable; the LMP was and is faulty by its' failure to honor the Forest Service signatory committment to the direction and goals of the Deer Herd Plans.

Issue 7b: We recognize that the difference between the DFG and FS WFUD estimates is only about 6%. However, the refusal by the Forest to utilize the DFG figures (which are based on solid data including deer tag sales, harvest and success rates, field surveys, and questionaires) is indicative of the continued resistance to modifying and improving the LMP when improved data is made available. Though the difference is relatively small, the Forest's understatement reveals the tendency to reduce emphasis on valuable wildlife resources.

Issue 7c: The FS repsonse to our request for analysis of the economic contribution of fish and wildlife resources is again evasive, lacking substance, and inadequate. The EIS pages cited in the Forest's response contain no specifics regarding the dollar values of such wildlife dependent outdoor recreation as hunting, fishing, photography, and other uses. Current information reveals that the "Willingness To Pay" values used in the Appendix B economic analysis are questionable (eg. deer hunting in California is now valued at $184 million per year; deer viewing, $69 million)(Loomis, 1989). Further, nowhere in the Plan do we find adequate economic analyses encorporationg specific dollar figures on the values of wildlife resources on the Forest or the specific effects of the alternatives on those values.

Issue 7d: We oppose the Forest's continued attempt to minimize the importance of the deer resource by refusing to use the best available imformation on populations on the forest. We view this refusal to encorporate solid DFG data as further evidence of the FS's demonstrated inflexibility throughout the planning and appeal processes. However, since deer numbers are dynamic and have declined recently due to the severe ongoing drought coupled with the effects of grazing and other competing land uses, we will withdraw this issue in an effort to facilitate the appeal process.

Issue 7e: This critically important issue centers on the need to include the vital trans-Sierra mule deer migration routes within the Mule Deer Prescription #4. The Forest remains inflexible on this issue, continuing to assert that protection of these habitats is assurred under Forestwide standards and guidelines which would "allow for some alteration of their habitat consistent with deer herd management objectives". This wording is not acceptable in reference to the identified migration corridors, since even minor alterations can have drastic consequences and since the Forest is admitting to an effort to

alter DFG's deer management objectives (Issue 7a).

Nor do standards and guidelines for other resource uses provide any assurance for beneficial deer herd management, since the LMP states that "Crucial trans-Sierra migration routes are scheduled for management under "Potential Alpine Ski Area" and "Range Emphasis" prescription". The deer herds are obviously in jeopardy under LMP direction, since the Plan lacks any S&G's for ski area development and the "Range Emphasis" contains no provision for or mention of deer migration routes.

As stated in our letter of 9/11/89, we submitted to the Forest in 1987 a map of our research findings on key deer habitats. We have subsequently provided updated mapping generated through the Geographic Information System (GIS) service provided by the BLM's Bishop office. Despite our diligent efforts in providing all latest and pertinent research results, the Forest has continued to refuse to consider altering Rx area boundaries for the benefit of the deer resource. In a February 23, 1990 letter to Regional Foresters, FS Chief F. Dale Robertson stated that, while imperfect, Forest plans employ "the use of improved data" to provide the best-ever basis for Forest action. Yet our best and most current information on deer numbers, WFUD's, and key migratory habitats (based on extensive and costly research) have been repeatedly refuted or ignored in the planning and appeal processes. We are certain that the Inyo Forest Plan is decidedly imperfect due to the Forest's refusal to employ the improved data provided by our Department. It is our firm position that adequate planning provision for deer herds will not be realized without inclusion of key migration corridors in the deer Rx.

Other important issues raised and reiterated during our participation in the appeal process have recieved no recognition or response in the responsive statement from the Regional Forester dated 9/4/90. These issues are as follows:

1) The confusion created by the contradictory language in the planning documents regarding the deer herd plans has been exacerbated by the new effort by the Forest to dictate revision of the California deer herd plans. We question whether the Forest is still committed to "insure compliance" with the plans it would revise and what such revisions would encompass. The LMP projects a 2% decline in deer habitat: the Forest's response has failed to address our recommendation for "substantive revisions of the LMP to include planning direction aimed at increasing habitat capability and deer numbers".

2) The response lacks any mention of our queries regarding specific information on LMP-directed deer habitat improvements.

3) No reply is provided regarding our comments on the need for inventory of wildlife/riparian habitat conditions and our concern regarding FEIS wording which appears to presuppose increased livestock impacts to riparian habitats.

4) We recommended meaningful and specific language for the Mule Deer Rx (and the "facilities" and "timber" sections) to help insure the future of the resource. These recommendations recieved no response.

Literature cited:

Loomis, John. 1989. Economic benefits of deer in California; hunting and viewing. Col. of Ag. & Env. Sci.: Univ. CA, Davis.

Issue #11 : Early Seral Stage Non-Timber Species

The response provided does not adequately address our stated concerns. As written, the proposed language addition to prescriptions 9 and 10 provides no assurance of habitat benefits for deer or other browse/shrub dependent species. We continue to maintain that the Plan should provide firm planning direction for this important habitat component by incorporating such specific standard and guideline wording as that adopted in the Sequoia NF Plan: " Retain summer forage for deer where preferred browse species occupy a timber site after harvest" We believe such direction could also create benefits for blue grouse, an increasingly important harvest species on the Forest, as well as other shrubland species which require mixed habitat types. Incorporation of the above language would likely reduce the Plan's projected loss of early seral stage brush and would fully satisfy our concerns on this issue.

We find it unacceptable that the Forest proposes to address deficiencies in the LMP by modifying the existing deer herd management plans. This and other responses suggest that, contrary to the multiple use principle, the Forest would diminish the emphasis on mule deer in order to accomodate intensive land uses and commodity outputs while there exists substantial unsatisfied demand for hunting and other uses of deer. The deer plans were formulated with the recognition of conflicts between deer and other land uses. The legislative intent was to guide land management decisions to benefit California's deer resource, to prevent serious impacts of conflicting uses, and to prevent severe declines in deer herds which could result from unsound or shortsighted management decisions.

This Department recognizes no need for such modifications, which we interpret as suggesting a relaxing of herd goals to accomodate the LMP's commodity emphasis. The subject plans are mandated to provide deer management direction for a ten-year period, and as such, were signed by the Forest Service and other agencies. The Inyo Forest has no authority to dictate or direct the revision of California's legislatively mandated deer management plans.