

YOLLA BOLLY DEER HERD MANAGEMENT PLAN  
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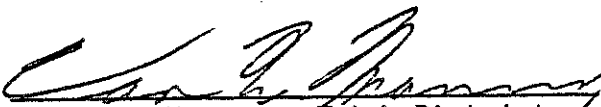
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## YOLLA BOLLY DEER HERD MANAGEMENT PLAN

### I. INTRODUCTION

A persistent and significant decline in deer numbers throughout most of California influenced the Department of Fish and Game to develop "A Plan for California Deer" in March, 1976. Assembly Bill 1521 (September, 1977) incorporated the Plan into law, specifying:

- A. Each California deer herd shall have a specific management plan;
- B. Selected management program elements shall be included in each herd plan;
- C. Each specific herd plan must generally conform to the goals of the State-wide Strategic Plan.

Tehama County has historically been one of the top 10 deer producing counties of California. The Yolla Bolly Herd, occupying the western half of Tehama County (Figure 1), historically produced about 30% of the overall county total. This herd did not seem to decline as greatly as its neighboring herds and harvest has increased since 1974.

The Yolla Bolly Herd is entirely within the inland deer season and except for the period 1970 to 1979, has supported a two buck legal limit. Over half of the hunting and deer harvest are accounted for by residents of Tehama County. The deer herd has declined in population, but most of the fluctuating harvest is related to a change in season length and bag limit.



## II. DEER HERD MANAGEMENT UNIT

### A. Deer Herd Definition and History

The Yolla Bolly Deer Herd contains resident and migratory Columbian black-tailed deer (Odocoileus hemionus columbianus), inhabiting Tehama County west of Interstate 5. Due to common summer ranges, the portion of southwestern Shasta County within Hunting Zone B-3 is included as part of this herd. That portion of Mendocino and Trinity County in Zone B-3 are excluded. Based primarily on biological factors, the Yolla Bolly Herd is divided into four subunits. (Figure 2).

a. The Thomes Creek Subunit covers approximately 265 square miles in the southwestern corner of Tehama County. These deer have been traditionally identified and managed as the Lake Hollow Herd. They summer on public and private timber company lands essentially from Anthony Peak to the Yolla Bolly Wilderness Area, and winter on private and Bureau of Land Management (BLM) lands in the foothills of lower Thomes Creek, in (or near) the location of the proposed Paskenta-Newville Reservoir. A portion of this subherd summers west of the Coast Range crest in Mendocino County.

b. The Tomhead Subunit covers about 300 square miles with a summer range mainly on public land within the Yolla Bolly Wilderness. The winter range of this subunit is BLM or privately-owned chaparral and oak-covered foothills bordering lower Cottonwood Creek, which was mainly burned over by the 76,000 acre Skinner Mill Fire of 1976.

c. The Beegum Subunit covers about 630 square miles of northwestern Tehama and southwestern Shasta County. The summer range for this area consists of public lands administered by the Shasta-Trinity National Forest and private timber company lands. A common winter range of BLM and private lands is located in the area around Beegum and Platina. Deer migrate to these winter ranges from summer areas in the Yolla Bolly Wilderness and Bully Choop Mountain (at the north end of the plan area).

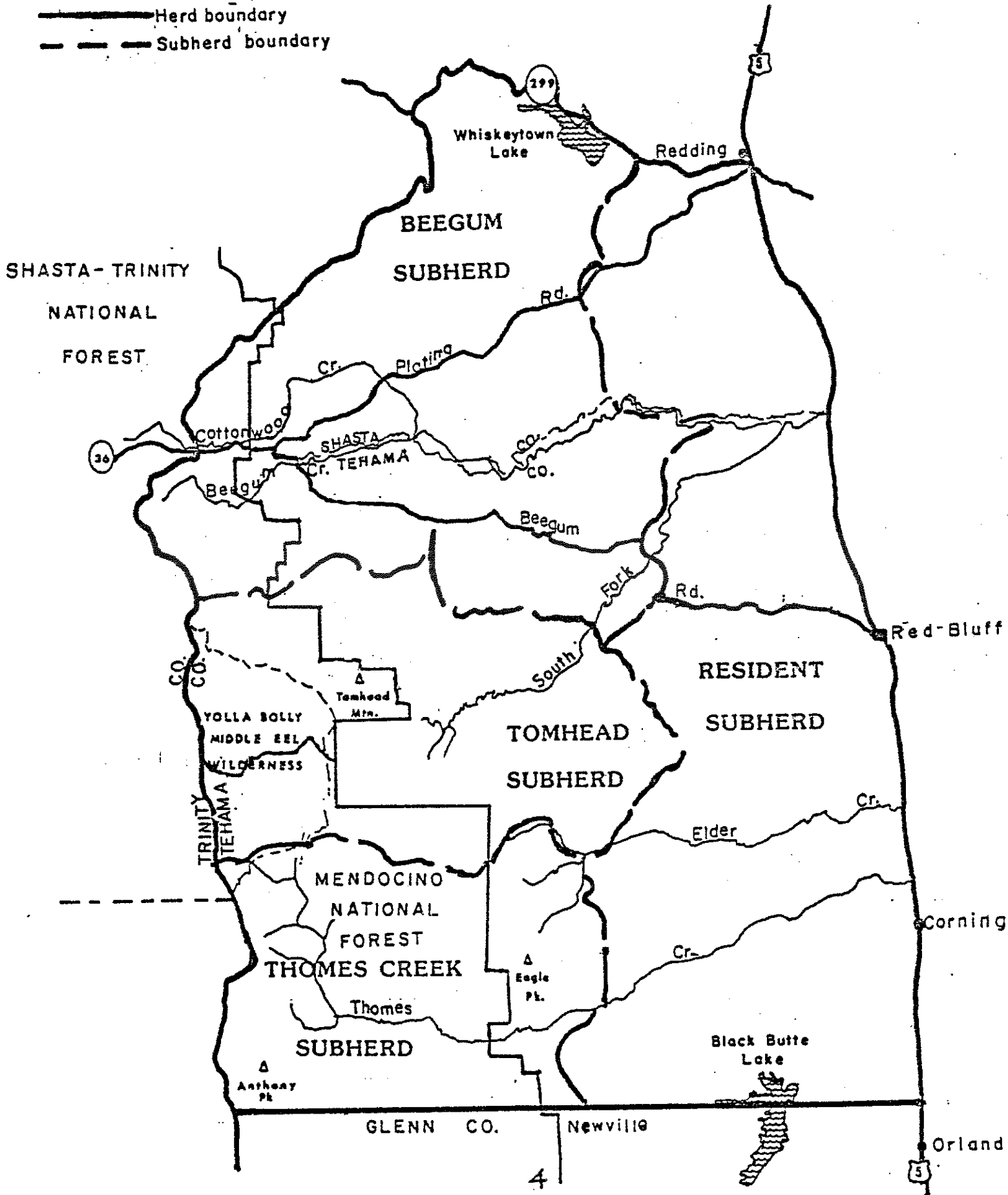
d. The West Tehama Resident Subunit covers about 865 square miles of the valley and lower foothills (below 3,000 ft. elevation) west of Interstate 5. This subunit is almost entirely within private ownership, used primarily for ranching and other agriculture. Deer are resident. Data is scant for this subunit and the extent or limits of the resource are relatively unknown.

#### 1. Estimated Herd Size

Estimation of the total size of the Yolla Bolly Deer Herd is difficult because the present Herd Unit has been fractionalized in the past and historical comparison is lacking. In 1956, the Thomes Creek subherd was estimated at 3,290 animals (Hodson, 1956). A study currently underway for the same subherd estimates 4,600 to 5,000 deer from pellet transects on the winter range in 1981 (Siperek, John - Wildlife Biologist, California Department of Fish and Game, unpublished).

Figure 2. YOLLA BOLLY

DEER HERD





Pellet group data has been gathered since 1962 on the Thomes Creek subherd winter range. (Table 1) This data relates to the subherd but is inconclusive regarding total population. It is consistent with the decline in recorded harvest during the mid-1970's. The continued decline during the late 1970's is probably the result of a change in distribution within the seasonal range (Ramsey, Tom - Wildlife Biologist, California Department of Fish and Game, personal communication).

TABLE 1: THOMES CREEK SUBUNIT PELLET COUNTS (WINTER RANGE)  
DEER DENSITY AND POPULATION ESTIMATES (1962-82)

YEAR	DEER DAYS USE/ACRE	DEER DAYS USE/MI <sup>2</sup>	DEER DENSITY/MI <sup>2</sup>	ESTIMATED POPULATION
1962-63	165.0	105,600	640	9,984
1963-64	111.6	71,424	433	6,755
1964-65	179.3	114,752	695	10,842
1965-66	144.1	92,224	559	8,720
1966-67	98.4	62,976	382	5,959
1967-68	83.9	53,696	325	5,070
1968-69	117.8	75,392	457	7,129
1969-70	94.5	60,480	367	5,725
1970-71	92.3	59,072	358	5,585
1971-72	80.7	51,648	310	4,836
1972-73	50.2	32,128	195	3,042
1973-74	91.7	58,688	356	5,554
1974-75	65.8	42,112	255	3,978
1975-76	66.0	42,240	256	3,994
1976-77	71.1	45,504	276	4,306
1977-78	52.7	33,728	204	3,182
1978-79	65.1	41,664	253	3,947
1979-80	66.7	42,688	259	4,040
1980-81	43.9	28,096	170	2,652
1981-82	38.8	24,832	150	2,340

Winter Range Area: approximately 10,000 acres.

Time Spent on Winter Range: approximately 165 days.

Deer Defecation Rate: 12.7 per 24 hour period.

Size has been estimated for the entire Yolla Bolly Herd Unit using the method developed by Smith in 1976 (Smith, Dave - Wildlife Biologist, California Department of Fish and Game, unpublished) based on reported harvest, herd composition, and age structure characteristics (Table 2). This method provides an estimate of minimum number and cannot be used to estimate herd size during 1979-1981. Estimates for this period were based on hunter harvest, herd composition, and age structure.

TABLE 2

ESTIMATED MINIMUM POST SEASON (DEC.) POPULATION  
YOLLA BOLLY DEER HERD

<u>Year</u>	<u>Bucks</u>	<u>Does</u>	<u>Fawns</u>	<u>Total</u>
1963	3,708	17,657	9,711	31,076
1964	3,641	15,830	6,807	26,278
1965	3,126	12,504	5,252	20,882
1966	1,748	8,740	3,234	13,722
1967	2,313	9,252	4,626	16,191
1968	1,988	11,694	5,613	19,295
1969	1,264	7,435	3,495	12,194
1970	1,493	9,331	3,546	14,370
1971	1,359	6,795	2,310	10,464
1972	872	6,708	2,214	9,794
1973	684	6,218	2,860	9,762
1974	794	3,970	1,945	6,709
1975	629	1,850	1,110	3,589
1976	1,339	5,356	2,785	9,480
1977	1,812	5,177	2,589	9,578
1978	2,220	7,161	2,363	11,744
1979 *	2,230	7,964	2,549	12,743
1980 *	1,761	8,005	3,682	13,448
1981 *	2,311	11,555	4,160	18,026

\* Extrapolated

## 2. Breeding and Fawning

An intensive study of the Thomes Creek Subherd (then called Lake Hollow Deer Herd) was conducted in 1954-1956 (Hodson, 1956). The breeding season of the migratory herd begins in the last week of November, peaks through early December and ends in early January. A 100% fertilization rate was found with a total of 165 embryos per 100 does.

Another intensive study of the Thomes Creek Subherd is presently underway (Siperek, 1980-1982). The current study has found a breeding period from November 9 till January 1, with a peak of activity around December 6. A sample of 20 adult does taken in 1982 shows a fertilization rate of 94% with an embryo rate of 181 fawns per 100 does, one of the highest ever recorded for black-tailed deer. These data are believed to be representative of the entire migratory portion of the Yolla Bolly Herd at this time by Tom Ramsey and Dave Smith.

Fawns are usually dropped from mid-June through early July; the length of the fawning season depending mostly on the nutritional plane of the does at breeding (Mansfield, 1974). The fawning period is relatively uniform throughout the Herd Unit. The current study has found the rearing area typically from 5,600-6,200 ft. elevation on relatively gentle E-SE aspects. Family groups apparently favored white fir, whitethorn, snow-berry, and ponderosa pine vegetation. Slash, especially large logs and/or stumps, is an important part of fawning habitat.

Little data is available concerning breeding and fawning of the resident subunit. Based on 20 years of personal observation and management responsibility, the Tehama Unit Manager (Ramsey) estimates that resident deer breed and fawn about two weeks earlier than the migratory animals.

## 3. Herd Sex and Age Composition

Composition surveys have been conducted in April and December annually since the fall of 1960 (Table 3). December counts provide buck and fawn ratios per 100 does. Fawns per 100 does are determined in the spring. In most years, data have been gathered primarily from the Lake Hollow and Platina areas. The more intensive data gathered from the Thomes Creek subherd (Siperek, John - Wildlife Biologist, California Department of Fish and Game, unpublished) in 1980-82 follows the same general trend as the Unit-wide data.

Buck ratios ranged from a high of 36 per 100 does in 1960 to a low of 11 in 1973. A general decline in buck ratios occurred from 1960 through 1973 with an increase from 1974 through 1978. It has remained relatively stable during the last three years, except for a continued decline in the Beegum Subunit.

Spring fawns per 100 does ranged from a high of 52 in 1964 to a low of 21 in 1966.

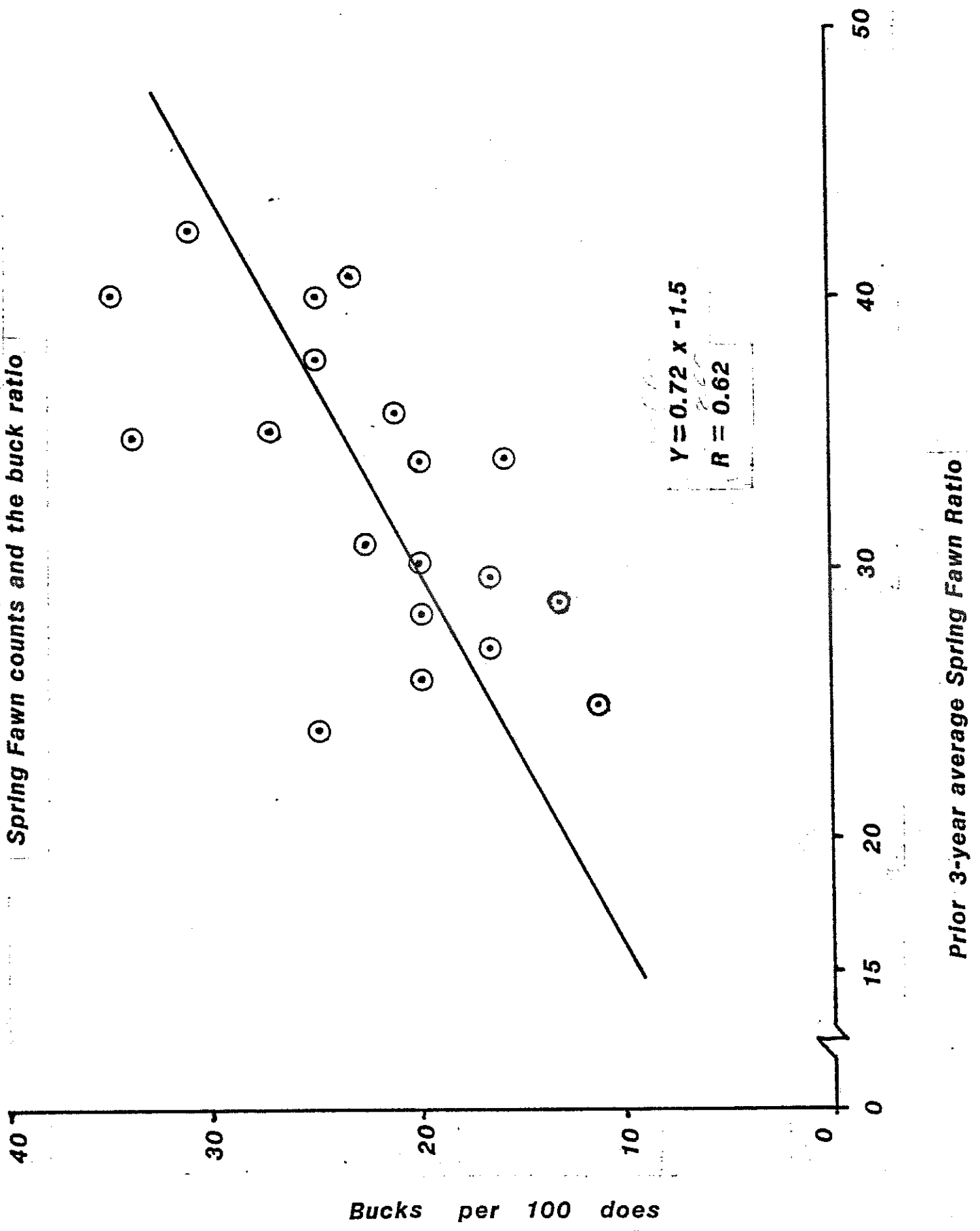
Changes in buck ratios in this herd are partially a result of changes in recruitment as measured by fawns per 100 does in April (Figure 3).

TABLE 3: YOLLA BOLLY DEER HERD  
Composition Data (1960-1981)

<u>Year</u>	<u>Fall</u>		<u>Sample</u>	<u>Spring</u>	
	<u>Bucks per 100 Does</u>	<u>Fawns per 100 Does</u>		<u>Fawns per 100 Does</u>	<u>Sample</u>
60/61	36	51	1006	37	1239
61/62	33	37	1214	31	598
62/63	33	38	887	40	873
63/64	21	55	899	52	676
64/65	23	43	806	29	667
65/66	25	42	851	21	679
66/67	20	37	754	23	792
67/68	25	50	522	36	769
68/69	17	48	917	30	1087
69/70	17	47	820	36	419
70/71	16	38	751	25	996
71/72	20	34	949	25	885
72/73	13	33	1084	--	--
73/74	11	46	534	32	339
74/75	20	49	639	38	494
75/76	34	60	620	44	459
76/77	25	52	707	39	363
77/78	35	50	982	45	523
78/79	31	33	787	22	443
79/80	28	32	747	26	681
80/81	22	46	428	30	514
81/82	20	36	560	30	501
82/83					
83/84					
84/85					
85/86					
86/87					
87/88					
88/89					
89/90					
90/91					
91/92					

-- Inadequate sample

Figure 3. Relationship between the average of the previous 3 years Spring Fawn counts and the buck ratio



Prior 3-year average Spring Fawn Ratio

#### 4. Hunter Harvest

Reported deer kills were highest in 1962 at 1,985 bucks, reaching a low in 1974 with 272 bucks (Table 4). Since 1974, the kill has increased steadily to 1,178 in 1981.

Since most of the deer in this herd are migratory, the hunter harvest is largely determined by the closing date of the season (Figure 4). In the 1960s, hunting season extended well into November, allowing more time to hunt after deer had migrated from higher inaccessible summer areas. During most of the 1970s, seasons closed much earlier and were often over before migration began.

Another factor that influences the buck harvest is bag limits. In 1970, the limit was reduced from two bucks to one and continued through 1978. The present two buck limit was reinstated in 1979. Mean hunter harvest during two buck limit seasons has been 1,379 deer compared to 548 deer during one buck years. Deer tag analysis indicates that very few hunters kill two deer in any given year. The change in hunter harvest levels is believed to result primarily from changes in hunter pressure. More hunters choose to hunt in two buck areas, and hunter numbers appear to drop significantly when only one buck is allowed.

Regression analysis relating both season closing date (number of days season extends past October 15), and bag limits results in a correlation coefficient  $r = .90$ . This relationship indicates that while the Yolla Bolly Herd declined from 1960 through 1974, the decline was not as severe as the drop in kill might indicate. The correlation provides a method of predicting and regulating annual buck harvests by adjusting season closing dates and bag limits.

No antlerless deer hunts have been held in the Yolla Bolly Herd since 1960.

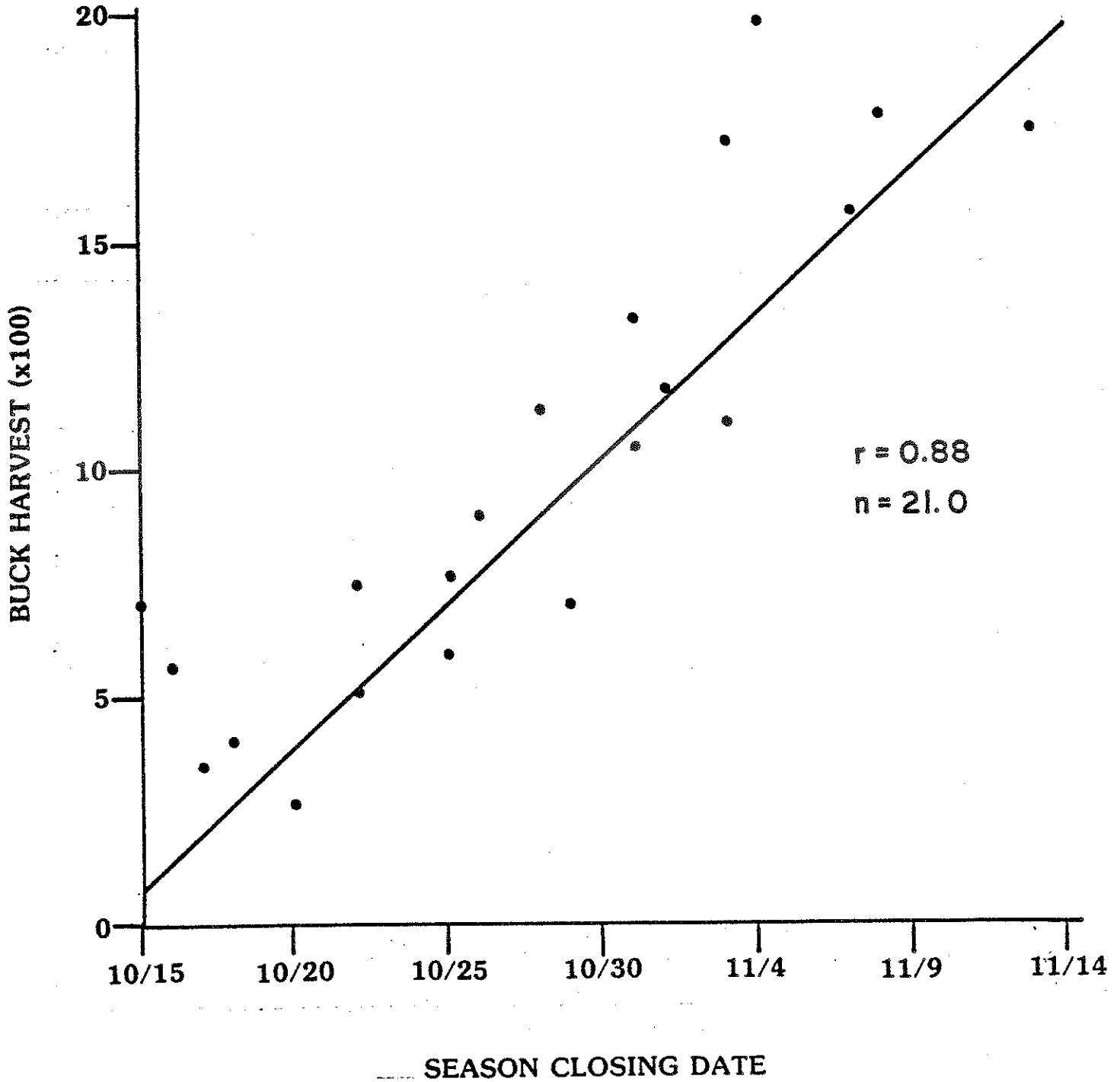
TABLE 4  
 Reported Buck Harvest for  
 Yolla Bolly Deer Herd (1962-81)

<u>Year</u>	<u>Season</u>	<u>Bag Limit</u>	<u>Reported Deer Kill</u>
1962	9/22-1/14	2	1,985
1963	9/21-11/3	2	1,726
1964	9/19-11/8	2	1,784
1965	9/18-11/7	2	1,567
1966	9/24-11/13	2	1,745
1967	9/23-10/29	2	704
1968	9/21-11/3	2	1,113
1969	9/20-10/31	2	1,337
1970	9/26-10/25	1	599
1971	9/25-10/25	1	764
1972	9/23-10/22	1	750
1973	9/22-10/22	1	502
1974	9/28-10/20	1	272
1975	9/24-10/18	1	413
1976	9/25-10/17	1	354
1977	9/24-10/16	1	564
1978	9/23-10/15	1	711
1979	9/24-10/28	2	1,137
1980	9/20-10/26	2	898
1981	9/26-11/1	2	1,178
1982			
1983			
1984			
1985			
1986			
1987			
1988			
1989			
1990			
1991			
1992			



FIGURE 4.

Buck Harvest vs. Hunting Season Closing Date



Mike

## 5. Herd Migration

Deer leave the winter ranges early in April and either hold for a month to six weeks in intermediate elevational glade and chaparral areas associated with most major streams, or move directly to high elevation summer ranges (Figure 5). Their rate of elevational movement seems to be influenced by presence of green feed (grasses and forbs), snow line, and individual behavior. The annual vegetation usually dries from mid-May through early June and migratory deer will move to higher elevations, usually into the more open timber and glades associated with the Coast Range crest areas (Table 5).

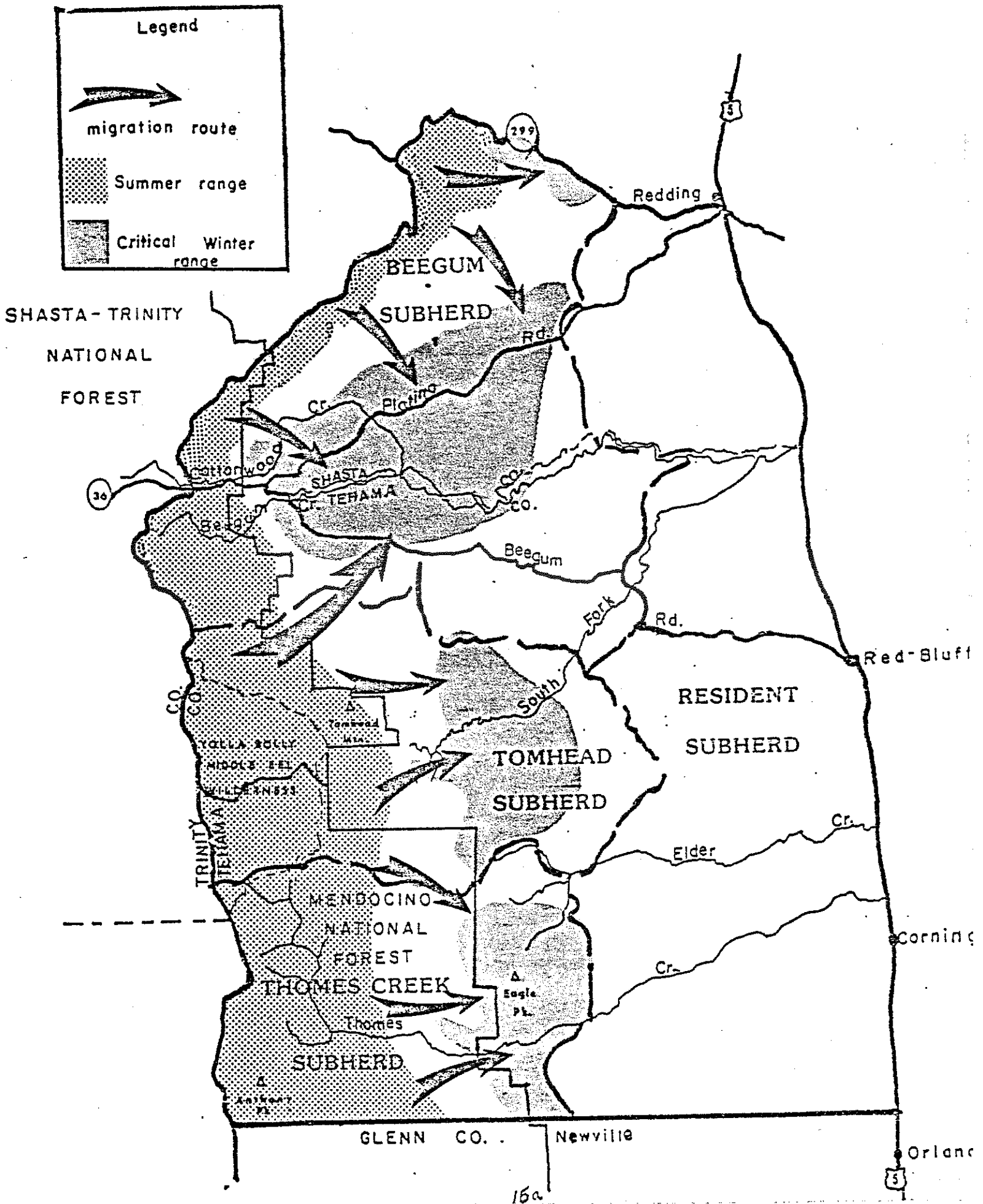
Fall migration begins in early October with a rapid movement into the chaparral and oak types. The animals remain in this transitional range for a month or longer, depending primarily on weather, acorn production, and condition of the winter range. Most deer reach the winter range by late October and breeding begins in early November. Hodson (1956) reported that the Thomes Creek subherd shifted winter use areas from chaparral at intermediate elevations to lower annual ranges. This change occurred from 1925-1930.

Habitat improvement of transitional ranges may change traditional movements and relocate deer use (Thornton, 1979). Since the improvement of transitional ranges, most of the Alder Spring Herd in Glenn County does not move to lower winter ranges, or occupies them only during stormy periods. This relocation is associated with an improvement in habitat quality in the intermediate range. Evidence indicates that the timing of deer arrival to the traditional summer ranges may be delayed from two weeks to a month but not totally eliminated.

TABLE 5  
PRELIMINARY ESTIMATES OF DEER HOME RANGE AND  
LENGTH AND TIME OF MIGRATION FOR THE  
LAKE HOLLOW DEER HERD

Deer I.D. No.	Summer Home Range in Acres	Winter Home Range in Acres	Approximate Length of Migration (airline miles)	Last Obs. on Winter Range 1980	First Obs. on Summer Range 1980
159.301	550 (n=15)	588 (n=4)	15	2/21/80	4/16/80
159.306	870 (n=10)	430 (n=8)	19	4/15/80	5/19/80
159.310	371 (n=5)	673 (n=11)	11	4/25/80	4/29/80
159.320	750 (n=9)	486 (n=7)	19	4/8/80	5/19/80
159.326		320 (n=9)	32	4/17/80	6/11/80
159.335	1331 (n=6)	128 (n=6)	17	4/8/80	6/2/80
159.340	1825 (n=12)	691 (n=6)	10	4/2/80	4/9/80
159.346	271 (n=15)				5/15/80
159.348	204 (n=12)	504 (n=15)	13	5/1/80	5/8/80
159.356	256 (n=12)	622 (n=15)	13	5/1/80	5/8/80
159.365	205 (n=11)	154 (n=9)	12	4/18/80	4/29/80
159.371	389 (n=5)	166 (n=5)	19	2/21/80	6/2/80
159.391				4/15/80	6/30/80
159.415	1075 (n=16)	358 (n=15)	18	4/25/80	5/1/80
159.421	1382 (n=12)	1397 (n=12)		5/8/80	
159.425		700 (n=6)	7	4/16/80	4/24/80
159.430	538 (n=8)	660 (n=9)	13	4/18/80	6/11/80
159.441	256 (n=8)	230 (n=7)	12	4/15/80	4/24/80
Average = 684.9		= 506.7	= 15.3		
Range = 204-1825		= 128-1397	= 7-32		

Figure 5. Seasonal movements of the Yolla Bolly Deer Herd



Based on the above relationship between prescribed fire and deer movements noted in Glenn County, habitat improvement may recreate the pre-1930 winter ranges of the Yolla Bolly Herd or (more importantly) influence deer use levels of high elevational summer ranges if desired as a management goal.

## B. Herd Range Description and History

### 1. Terrain

The range of the Yolla Bolly Deer Herd consists primarily of the east slope of the inner coast range of western Tehama County and southwestern Shasta County. Elevations range from about 1,000 feet on lower portions of the winter range to slightly over 8,000 feet at Mt. Linn in the south Yolla Bolly Mountains. Topography of the area is generally steep, especially in the canyons of major streams such as Thomas Creek, Elder Creek, Beegum Creek, and Cottonwood Creek.

Geologically, the range of the Yolla Bolly deer herd is of sedimentary origin, except for the meta-volcanic serpentine foothill belt. Unlike the volcanic structure in eastern Tehama County, stream canyons have relatively few bluffs and rock outcroppings. Instead, there are some extensive shale slide areas. With the exception of the glade areas, most slope are densely vegetated.

### 2. Soils

Soils in the mountain and foothill ranges is composed of four primary associations: Maymen-Los Gatos-Parrish; Heneke-Stonyford; Dubakella-Neuns; and Sheetiron-Josephine (Tehama County Soil Survey). In the lower foothills and valley areas, there are two primary soil associations, Newville-Dibble; and Millsholm-Lodo.

The Maymen-Los Gatos-Parrish association occurs along the eastern slope of the Coast Range between 1,000-4,000 feet elevation. The soils are shallow to moderately deep, steep to very steep, and rocky, generally underlain by hard sandstone and shale. Maymen soils are gravelly loam less than 20 inches deep, Los Gatos soils are light clay loams as much as 30 inches deep, and Parrish soils are as much as 40 inches deep. Hull soils, (a minor series within the above association), are the soils of the glade areas, generally less than 30 inches deep, supporting grasses and forbs in moderate quantity and good quality. The Maymen-Los Gatos-Parrish association comprises the bulk of intermediate range and a portion of the winter range.

The Heneke-Stonyford association on meta-volcanic geology occupies a narrow strip along the eastern edge of the coast range and comprises the bulk of the winter range of the Thomas Creek and Tomhead subherds and portion of the Beegum subherd. The soils are shallow to moderately shallow, steep to very steep and rocky, underlain by serpentine and greenstone (altered basalt and andesite), and formed from serpentine. Soils of serpentine origin lack certain trace elements and are not utilized extensively by deer and other wildlife.

The Dubakella series consists of moderately to very steep, well-drained soils formed in material from serpentine and associated rocks. Depth ranges from 14 to 30 inches. The soils range from elevations of 2,000-5,000 feet, with vegetation consisting of conifers, hardwoods, and shrubs. Some timber is harvested from these soils but fertility is low and vegetative growth is slow because of an unfavorable ratio of calcium to magnesium. The Nuens series is similar to Dubakella but is formed in material from metamorphic rock. The soils are distributed with the Dubakella at elevations between 3,000-6,000 feet. The vegetation is primarily conifers.

The Sheetiron series are strongly sloping to very steep gravelly loams, well drained, and formed in material from metamorphic rock. They are medium to strongly acid and range from 16 to 32 inches in depth. They occur at elevations between 3,000-6,000 feet and support primarily conifers, but include some black and scrub oak. Josephine soils in association with the Sheetiron series consists of deep, moderately steep to very steep, well-drained, reddish-brown soils formed in material from hard sedimentary and metamorphic rock. They range at elevations of 3,000-5,000 feet. The vegetation is various kinds of conifers and hardwoods. They are used for timber production and are medium to strongly acid. Depth ranges from less than two feet to over five feet, and are generally gravelly. Fertility is moderate to high.

The Newville series are nearly level to very steep, well-drained soils formed in material of softly consolidated sediment derived from conglomerate and siltstone of the Tehama formation. They are primarily the soils of the rolling foothills of southwestern Tehama County, and range in elevation from 200-2,000 feet. The vegetation is mostly annual grasses and forbs but include some blue oaks and shrubs. Some of these soils are cultivated for dryland grain crops, but most are used for rangeland. Dibble soils in association with the Newville series, are well drained soils of moderately fine texture formed in material from sandstone. They are medium acid and found on low rounded foothills in western Tehama County. The vegetation is grass or grass-oak. Depth ranges from 18-48 inches but generally averages 36 inches.

The Millsholm series consists of hilly to steep soils formed in material from sandstone, shale and conglomerate. They are shallow and well drained and are near rock outcrops in many places. They are found in the foothills of western Tehama County at elevations of 500-2,000 feet. They are primarily used for livestock range. The soils are neutral to slightly acid. The Lodo series are moderately steep to very steep, excessively drained soils formed in material from hard gray shale. Fertility is low and runoff is medium to rapid, thus posing a moderate to serious erosion hazard. These soils occur in canyons cut by streams, and occupy generally small areas ranging from 10 acres to 500 acres. Depth to weathered and fractured shale ranges from 6 to 10 inches, with some areas of shale exposed. The vegetation is sparse and includes grasses and forbs along with scattered oaks and shrubs.

### 3. Climate

The climate of deer winter range areas is characteristic of the upper Sacramento Valley region of California. The winters are mild and the summers hot and dry. Freezing temperatures sometimes occur from October through March. The rainy season generally extends from October through April. Comparatively gentle rains fall during October and November, increasing in intensity during the winter and tapering off during the spring months. Snow occurs occasionally below 3,000 feet, but usually melts rapidly and is seldom a problem to deer on the winter range. Seasonal precipitation, both in quantity and distribution, is the primary factor influencing forage production on the winter range.

Temperatures during the winter range from below 32°F at night to the mid 50's during the day. Summer temperatures often exceed 100°F during mid-June through mid-September.

Precipitation in the form of both rain and snow is much greater on the summer range and varies considerably from the southern to northern extremes of the deer herd's range. Rainfall recorded at Paskenta (Thomes Creek subherd) averages about 25 inches annually while rainfall in southwestern Shasta County (Beegum subherd) averages about 35 inches.

Snowfall is heavy (in excess of 100 inches) at the higher elevations of the summer ranges. Snowfall above 4,500 feet generally does not affect the deer herd unless it inhibits migration or occurs during the fawning period. Overall seasonal precipitation on the summer range probably ranges from 60-75 inches. Timing of fall rains with warm temperatures are critical factors affecting summer/fall fawn survival rates.

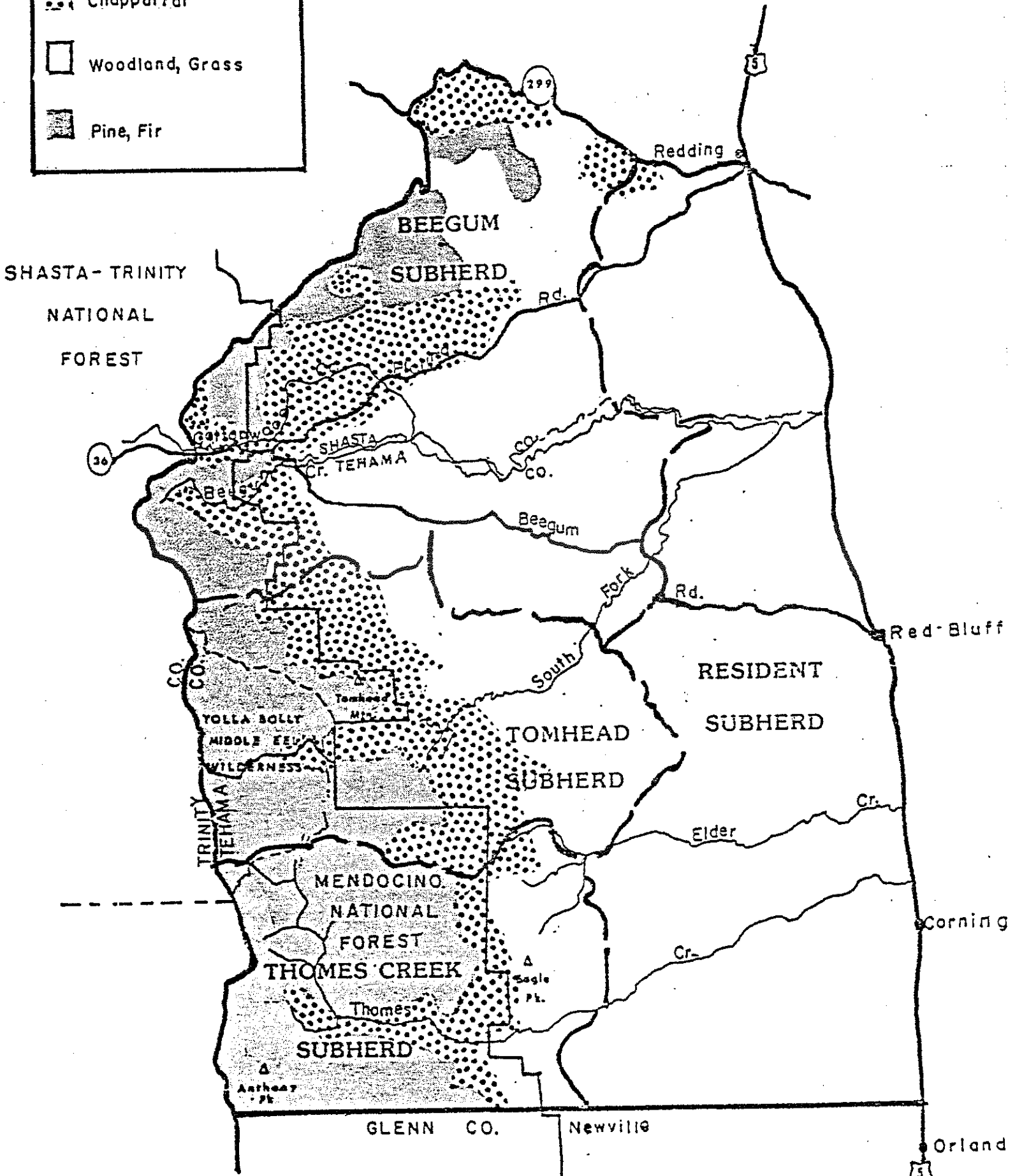
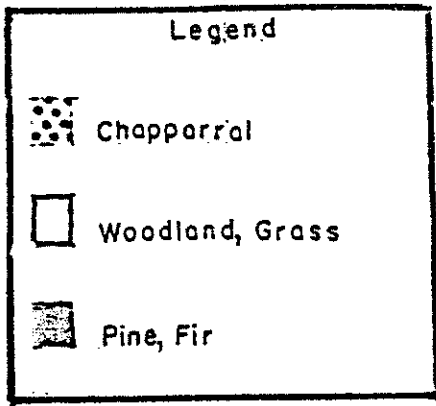
### 4. Vegetative Communities

The vegetative communities of this deer range (Figure 6) consist of three broad types (Jensen 1947). They are oak woodland-annual grass; chaparral (chamise and other brush species); and pine-Douglas fir-tre fir (mixed conifer).

Blue oak (Quercus douglasii) and Garry oak (Q. garryana) are the primary hardwood species of the oak woodland-grass type, with annual grasses (of the tribes Bromus and Festuca) and forbs occurring as understory. Forb composition is primarily filaree (Erodium spp), lotus (Lotus spp), and bur clover (Medicago hispida). Numerous other native and introduced plants also occur.

The chaparral community consists primarily of chamise (Adenostoma fasciculatum), interspersed with buck brush (Ceanothus cuneatus), birchleaf mahogany (Cercocarpus betuloides), scrub oak (Quercus spp.), manzanita (Arctostaphylos spp.), and silktassel (Garrya fremontii). Interior live oak (Q. wislizenii), occasional stands of black oak (Q. kelloggii), canyon live oak (Q. chrysolepis) and scrub type Garry oak also occur and provide important mast (acorn) crop for deer.

Figure 6. Vegetation of the Yolla Bolly Middle Watersheds





The pine-Douglas fir-true fir association includes; ponderosa pine (Pinus ponderosa), sugar pine (Pinus lambertiana), incense cedar (Calocedrus decurrens), Douglas-fir (Pseudotsuga menziesii taxifolia), and the true firs (Abies spp.). Conifer range areas influenced by logging and wildfire sometimes contain dense brush fields which are dominated by manzanita, mountain whitethorn (Ceanothus cordulatus), deer brush (Ceanothus integerrimus), snow brush (Ceanothus velutinus), gooseberry (Ribes spp.) and other species. Perennial grasses replace annuals to a large extent within the timber vegetation type.

Riparian habitat, important to many species of wildlife, occurs along stream courses throughout the deer herd's range. It primarily consists of cottonwood (Populus fremontii), alders (Alnus rhombifolia), willows (Salix spp.), mulefat (Baccharis viminea), and wild grape (Vitus californica).

#### 5. Seasonal Ranges

Summer ranges for the migratory Thomes Creek, Tomhead and Beegum subherds are characterized by steep sloped ridges, peaks and canyons densely covered by brush at lower reaches and pine and fir timber at higher elevations. On south facing slopes of the major drainages, many open glade areas occur. These are characterized by heavy soils which support extensive grass and herbaceous ground cover. These glades are most extensive in upper Thomes and Cottonwood Creeks and are heavily utilized by deer. The higher mountains are thickly timbered with relatively few opening meadows. An exception is Cedar and Beegum Basins in the North Yolla Bolly mountains, where extensive glade and meadow areas occur.

Winter range is comprised of the lower chaparral belt and oak-woodland grass type. Chaparral areas are generally steep and highly erodable, while the oak-woodland-grass type consists of rolling foothills and some flat land along stream courses. Although the canyons of major drainages are steep sloped, stream gradients are low. Glade areas along upper Thomes and Cottonwood Creeks are utilized in some cases, as both summer and winter range.

Resident deer range extends from the Sacramento Valley floor to the foothills of the Coast Range. In most cases, it is characterized by rolling foothills of grass oak woodland type. The area is utilized primarily as rangeland. Irrigated pasture and some alfalfa are produced in widely scattered portions of the subunit. It is in these areas that resident deer concentrations occur.

#### 6. Water Sources

Distribution of water is good throughout the range of the deer herds. Major streams are Thomes, Elder, Cottonwood and Beegum Creeks. Many smaller tributaries of these streams are also live throughout the year, especially at higher elevations. Important small tributaries are: Mill, Slate, Fish, Willow, Buck, Wells, Salt, and Dry Creeks. Numerous other drainages at lower elevations are intermittent and flow only through the rainy season. In addition, there are a large number of springs and seeps throughout the deer herd range. Farm ponds provide an important water source for the resident herd.

7. Landownership

The Yolla Bolly Herd occupies both privately owned and public lands. In general, summer ranges of the migratory subherds occur on either public (Mendocino or Shasta-Trinity National Forest) or large timber operator (Crane Mills, Inc., Louisiana-Pacific, Southern Pacific) lands. Winter ranges are on either privately owned or BLM lands. The resident herd occupies mainly privately owned lands.

TABLE 6 --- LANDOWNERSHIP OF YOLLA BOLLY HERD RANGE

Public ownership

Mendocino NF . . . . .	127,000 acres
Shasta-Trinity NF. . . . .	107,000 acres
BLM. . . . .	48,000 acres
State of California. . . . .	5,000 acres
Corp of Engineers. . . . .	3,800 acres

Private ownership

Crane Mills. . . . .	40,000 acres
Louisiana-Pacific. . . . .	25,000 acres
Southern Pacific . . . . .	6,500 acres
All other. . . . .	503,000 acres

8. Human Population

The population of Tehama County rose steadily from 1970-1980 (Table 7) at an average annual increase of 3.3%. This trend is projected to continue during 1980-90 but at a reduced rate. Growth rates in Tehama County exceed the State-wide average growth rate by about 60%.

Most of the population increase has come in the unincorporated areas of the County. In general, growth has clustered around existing towns or along the Interstate 5-Highway 99 transportation corridor. With limited exception (Trinity Alps Preserve Subdivision), the Yolla Bolly Herd has not been significantly affected by human population growth reducing quantity or quality of habitat.

TABLE 7: TEHAMA COUNTY POPULATION

	1960	1970	1980	1990
Corning	3,006	3,573	4,750	---
Red Bluff	7,202	7,676	9,475	---
Tehama	261	317	370	---
Unincorporated	14,836	18,034	23,750	---
Total County	25,305	29,600	38,345	50,200

Sources:

- (a) US Dept. of Commerce-1981, Table 2, Table 3-Series II projections; Table 9
- (b) Calif. Dept. of Finance 7/1/81 Estimates
- (c) Calif. Statistical Abstract-Table 1980 B-4, 1961 Table F-7, 1971, Table B-7
- (d) Report 81 P-1, Calif. Department of Finance
- (e) Report 81 E-1, Calif. Dept. of Finance, Totals for cities does not always equal new estimated total for county.

9. Agriculture

Agriculture in Tehama County is diversified and important, occupying 58% of the land base. The more gentle eastern portion of the Yolla Bolly Herd is essentially dry-farming or cattle grazing. There has been some increase in irrigated acreage in the southeastern portion of the resident deer herd range based on the development of the Corning (1961) and Tehama-Colusa (1975) canals. Essentially, this shift came from dry farm areas and has probably been beneficial for the relatively few resident deer inhabiting the area.

Livestock production increased during the 1950's and resulted in increased utilization of rangeland in western Tehama County (Table 8). This increase continued into the 1960's as a result of northern livestock being brought into the area for winter and spring range. Numbers declined during the latter 1960's and stabilized through the 1970's.

Federal grazing leases on public land totalled 1,219 animal use months in 1982. Of the total, 11 AUM's are BLM, 728 AUM's Mendocino N.F., 480 AUM's are Shasta-Trinity N.F. The Mendocino N.F. is seeking to introduce sheep use of recently burned brushlands and older type-conversions as a brush management tool, with a foreseeable potential for one band of 2,000 sheep.

High elevation summer range is limited in this general area and is mainly in public ownership. It is generally in poor range condition based on past over utilization by livestock occurring from 1880-1920. Grazing on public land has increased since the mid-1970's.

TABLE 8 --- GRAZING INDUSTRY OF TEHAMA COUNTY

<u>Livestock</u>	<u>1953</u>	<u>1962</u>	<u>1970</u>	<u>1980</u>
Cattle	46,000	68,500	44,100	41,200
Sheep	88,600	89,200	74,800	78,900

## 10. Timber

About 25% of Tehama County is covered with commercial timber stands. The higher elevations of western Tehama County have been logged since the early to mid-1950's (with the exception of the Yolla Bolly Wilderness summer range for the Tomhead subherd). Hodson (1956) predicted significant habitat improvement of summer range resulting from the foreseeable increase in logging activity within the Thomes Creek subunit.

Public timber amounts to 48% of the timberland acreage of Tehama County and is managed on a sustained yield basis, which amounts to a planned harvest of 30 million board feet, averaging 1,250 acres annually on the Mendocino N.F., and 1,000 acres on the Shasta-Trinity N.F. Table 9.

Both National Forests are practicing intensified timber management, including tree improvement, site preparation, regeneration, release, thinning and slash modification. Most harvests on the Shasta-Trinity N.F. have been regeneration cuts. Units are kept small, well distributed, and the slash is burned or piled before planting. Brush and forbs are rejuvenated or reestablish quickly and provide good habitat for 15-20 years, unless interrupted by further silvicultural practices such as release. The Mendocino N.F. has historically harvested timber on a selective basis. Brush, forb and grass establishment and/or rejuvenation has been spotty and the summer range of the Thomes Creek subherd is lacking in both quantity of forage and cover for fawning or escape. Recent shifts to regenerating cutting should result in cutting patterns similar to the Shasta-Trinity N.F. and produce the same beneficial effects.

Both Forests are receiving increasing levels of deer browsing on conifer plantations, in specific locations, to levels that deny stand reestablishment. Both Forests are using mechanical protection (Vexar tubes) for seedlings within timber plantations in recognized deer concentration areas; an expensive solution, inherently unsatisfactory as long-term strategy but more reasonable than continued replantings. Both Forests are beginning to selectively remove oaks within timber sales. Average acreage of timber plantation establishment is estimated to vary from 300-500 acres/year on the Mendocino N.F. in the short-range increasing to 800 acres annually within 5 years. About 150-200 acres on the Shasta-Trinity N.F. will be annually replanted.

About 52% of Tehama County timberland is privately owned, essentially by Crane Mills, Louisiana-Pacific and Southern Pacific. Their corporate goals are long-term timber production. Private logging is regulated by the California Forest Practice Act. Most private timberland approaches the minimum stocking limits set by the Act, achieved mainly through selective, high-risk harvests and natural regeneration. Browsing has not been a serious problem up to this point, because of the dependence of private companies upon natural regeneration. All Corporations seem to be increasing the intensity of their management activities, including intensive site preparations which eliminates existing browse. Coupled with an increase in deer populations, browsing damage to reproduction reducing timber output could become a concern of private industry at some future time.

4. Predation - The mountain lion (Felis concolor), coyote (Canis latrans), bobcat (Lynx rufous), and black bear (Ursus americana) are reported predators to the Yolla Bolly deer. The mountain lion and coyote are the most common predators. Of the total mortality associated with the 1980-82 tagging study, 24% was related to lion, 16% to coyote (Table 10).

Mountain lions have been increasing in the Yolla Bolly deer herd range since the legislative moratorium to sport hunting in 1971. Lions are increasingly observed in agricultural areas of the lowlands and there has been an increase in depredation applications. These sightings and increased depredation requests indicate attempted establishment of territories by young animals due to high populations in their historical range (Thornton, Bill - Wildlife Biologist, California Department of Fish and Game, personal communication).

TABLE 10 - Number of Radio-Collared Deer Lost to Various Mortality Factors (12/79 - 11/82)

<u>Cause</u>	<u>Mortality</u>			<u>% of total Mortality</u>
	<u>Adult</u>	<u>Fawns</u>	<u>Total</u>	
<u>Predation</u>				
Lion	2	4	6	24%
Coyote	3	1	4	16%
Bear	1	-	1	4%
Raptor	-	1	1	4%
<u>Poaching</u>	2	1	3	12%
<u>Natural causes</u>	4	-	4	16%
<u>Broken Neck</u>	1	1	2	8%
<u>Starvation</u>	-	1	1	4%
<u>Parasite (lung worm)</u>	-	1	1	4%
<u>Unknown</u>	1	1	2	8%

Total collared sample . . 52 animals

Total mortality of sample . . 25 animals

Siperek, John - Wildlife Biologist, California Department of Fish and Game, unpublished

#### IV. MANAGEMENT UNIT GOALS

<u>Factor</u>	<u>Existing Situation</u>	<u>Long-term Goals</u>
	<u>1981</u>	<u>1992</u>
Herd Size	18,000	25,000
Buck Ratio/100 does	20	Not less than 30
Spring fawns/100 does	30	Not less than 45
Buck Harvest	1,178	1,700

The goals for the management of the Yolla Bolly Deer Herd were developed through a process involving analysis of herd and habitat condition, public and Agency concurrence, sociopolitical realities, and goals and objectives of multiple-use resource programs. These goals can best be reached through a multi-faceted management approach which includes reducing fawn mortality and implements selected habitat improvement projects. While changes in either mortality or habitat quality do not guarantee reaching the adopted Unit Goals by 1992, active management to enhance habitat and reduce fawn mortality are appropriate management direction for the next 10 years. The following main conclusions significantly influenced goals levels:

. . . . Overall herd population has declined from its historic high level but not to the extent indicated by present harvest levels.

. . . . Herd productivity based on fetal rate is excellent based on Hodson and Siperek's studies.

. . . . The Herd sustains a high summer fawn loss. Five of none collared fawns were lost to predation; four of the five to mountain lions.

. . . . Based on post season buck ratios, legal harvest of this herd is light, averaging 5%. Closing date of hunting season and bag limit are important variables regulating the harvest level of bucks.

. . . . The present Hunting Zone boundary is biologically satisfactory for management of this Herd.

#### V. PROBLEMS IN MANAGEMENT

A. The heavy and decadent mid-elevational chaparral stands offer little nutritional value to deer, forcing animals onto annual grass types in winter and extending the use period upon the more limited summer ranges.

B. Improvement of the chaparral type will require coordination of four agencies and the private ownerships within two different programs.

C. Deer browsing of timber plantations is likely to increase along with the population. Both harvest and post-sale activities need to be coordinated with known and expected deer populations.

D. There is limited data concerning both predation and poaching. The factors producing the high summer fawn mortality need to be identified.

E. Significant increase in oak harvest for firewood should be monitored.

F. Data concerning seasonal movements of deer in the northern half of the unit is lacking.

G. Funding for deer habitat improvement is limited.

H. Social resistance to utilization of antlerless deer limits management alternatives to those associated with habitat improvement, lowering the harvest potential of the herd.

I. The Yolla Bolly Wilderness area is essentially unmanageable habitat and covers most of the summer range of the Tomhead Subherd.

J. Escape cover and browse are limited on the summer range in the southern part of the Herd Unit.

## VI. MANAGEMENT PROGRAM, OBJECTIVES, AND RECOMMENDED PRESCRIPTION

The following programs, specific objectives, and recommended prescription/actions are designed to achieve Herd Plan goals. They were developed after considering various alternatives, and are intended to provide basic management direction which allows other land/resource programs to benefit deer.

### A. Inventory and Investigative

Objective: To collect (and maintain) additional information (on a subherd basis) that identifies trends in deer populations and habitat conditions and monitors progress toward Herd goals.

1. Continue annual fall and spring herd composition counts, classifying a minimum of 250 animals, in Thomes, Tomhead, and Beegum subunits (each).

2. Continue spot-kill mapping of hunting season kills. Develop a system that incorporates timing of kill with location.

3. Continue locker-checks at Red Bluff to determine age-structure of harvest.

4. Complete DWR funded 1980-82 Thomes Creek subherd study. Publish in 1983.

5. Collect and analyze 20-25 deer on intermediate range within post-breeding conditions, for comparison with previous post-winter collection data.

6. Develop a trapping-telemetry study about 1983 in Beegum subunit to determine herd movements.

7. Continue existing pellet surveys. Seek to determine effects of higher elevational habitat improvements through change in locations and level of use.



8. Monitor and record annual acreage of oak firewood operations. Begin to evaluate effects.

9. Monitor and record the levels of browsing of conifer plantations on major timber company and public timberlands to provide benchmark information for evaluation of effects of expected increase in deer population.

10. Increase interagency coordination for deer and habitat program evaluation.

11. Monitor trapping and depredation requests for predator programs to provide benchmark information to allow evaluation of predator population and their effects on deer population.

12. Monitor habitat improvements over time, identifying effects on deer movement, health, population size, etc.

#### B. Mortality Control

Objective: Reduce all causes of mortality (except hunting harvest) to increase deer numbers to achieve herd goals. Emphasis will be placed on early fawn losses. Nutritional stress, predisposing deer to other losses, is covered within the Habitat Element. Poaching and illegal kills are covered in the Law Enforcement Element.

#### Recommended Prescriptions

1. Increase escape cover in summer ranges on public land, especially within the Thomes Creek subunit, through a change to regenerating cutting. Site preparation, and/or slash disposal activities of the timber operation should retain a satisfactory level of large slash for escape cover. Increase understory vegetation by planting or rejuvenating where appropriate.

2. Continue fawn study in Three-Prong area in 1982. Evaluate 1981-1982 data to isolate effects of logging activity on young-of-the-year.

3. Coordinate public use of public lands to minimize disturbance in critical habitats, i.e., fawning areas.

4. Reduce the road/trail density or period of use through closures in areas of summer range on public lands where conflicts occur with fawning and rearing needs.

#### C. Habitat

Objective: To create the conditions per unit area described by the following Habitat Models in three major vegetative types by 1992. These Models reflect what is locally thought by resource managers to be reasonable habitat conditions that can be coordinated with other resource values and programs.

CHAPARRAL

Cover - - - - -

1. Hiding (escape) cover . . . 4 + year old brush distributed in 20 to 40 acres patches. . . . . (25%)
2. Fawning cover . . . 10 acre cells associated with nearby (1/4 mile) water and riparian vegetation . . . . . (10%)
3. Thermal cover . . . . . ( 5%)
4. Optional . . . to be devoted to major limiting factor of above cover types . . . . . (10%)

Forage - - - - -

1. New brush . . . 1 to 3 year old brush distributed in 10 to 20 acre patches. . . . . (15%)
2. Annual grass and forms . . . . . (15%)
3. Perennial grass. . . . . (10%)
4. All-aged oaks and/or riparian. . . . . (10%)

Water - - - - - available within 0.5 mile

Solitude - for the fawning period (essentially May 15 through June 15)

MIXED CONIFER AND TRUE FIR FOREST

1. Meadow/glade . . . . . 10%
2. Browse (available and nutritious). . . . . 15%
3. Immature timber (seedling, sapling). . . . . 15%
4. Open (less than 50% crown cover) timber. . . . . 20%
5. Mature (50 to 100% crown closure) timber (including pole-sized stands) . . . . . 40%
6. Oaks ( a minimum of 200 sq. ft. per 40 acres, even distribution of age classes). See prescriptions for specific detail.
7. Water . . . available within 0.5 mile
8. Solitude from physical harrassment for fawning period (June 1 to July 15) in fawning areas.

OAK-GRASSLAND

1. Fawning cover . . . 10 acre cells associated with nearby water (0.1 mile) and dense vegetation for escape cover . . 10%
2. Escape/thermal cover . . . heavy, thick oak and/or brush stands, distributed ideally within 300 yards of forage areas in at least 10 acre patches. . . . . 10%
3. Annual grass and forbs . . . open to sun, preferably on south slopes, ideally in proximity to escape cover . . . . 20%
4. Blue oaks . . . ideally with a full range of age classes; at least 25% of mast producing age . . . . . 60%
  - a. Oak type should include preferred brush species as understory . . . . . 10%
  - b. Oak type should include riparian, small meadows. . . . 10%
  - c. Oak type should include larger down trees, logs or rock outcrops, 2 to 3 per acre.
  - d. An understory of tall herbaceous vegetation ( > 2 feet, such as wild oats) should occur under 50% of the blue oak stands.

Recommended Prescriptions

1. Prescribe burn or otherwise manipulate decadent chaparral type with the following target acreages:

Mendocino National Forest . . . . .	1,000 acres/year
Shasta-Trinity National Forest. . . . .	500 acres/year
BLM . . . . .	1,000 acres/year
Private (SB1704). . . . .	4,500 acres/year
2. Prescribe burn 10% of the perennial grass types/year on the Mendocino National Forest and Shasta-Trinity National Forest.
3. Continue Sunflower CRP as per Action Plan.
4. Complete and implement Thomes Creek CRP as per Action Plan.
5. Continue Crane-Pacific CRP as per Action Plan.
6. Protect all riparian vegetation (alders, willows, sedges) from modification except for important water development projects. Increase riparian as much as technically possible in summer and intermediate range.
7. Allow no decrease in meadow/glade type.

8. Do not convert staple or preferred browse species to another vegetative type in summer/intermediate range mixed conifer, unless suitable browse has been developed in adjacent areas.

9. Prescribe burn slash after patch cuts.

Shasta-Trinity National Forest	200 acres/year (average)
Mendocino National Forest	800 acres/year (average)

10. Mendocino National Forest should underburn 1,000 acres of conifer type/year to rejuvenate staple/preferred browse understory in logged areas.

11. Develop and approve Fire Management Plan for Yolla Bolly Wilderness.

12. Mendocino National Forest regenerate 100 acres/year with preferred browse species on summer range by planting.

13. Maintain black and live oaks within 5 chain corridor along migration routes on public lands.

14. Maintain existing vegetative diversity within 300 feet radius of springs, seeps, glades, meadows.

15. Continue Sikes Act projects as per Action Plan (1983-89) with Shasta-Trinity N.F., Mendocino National Forest.

16. Habitat improvement of transitional ranges should include revision of Range Allotment Management Plans to defer high elevational grazing through mid-July.

17. Coordinate plantation release program with timber harvest cycle to provide a basically even production of forage.

18. Continue to maintain heavy slash component (logs) on public and private and clearcut timberlands until replaced by brush or conifer thicket.

#### D. Utilization

Objective: Provide the conditions necessary to allow a reported buck harvest of 1,700 animals with a post-season ratio of 30 bucks/100 does.

#### Recommended Prescriptions

1. Determine the amount of inaccessible (landlocked) public lands. Develop a program to provide an increase of 25% in accessibility within Plan period.

2. Recommend length of season based on correlation between deer kill, season length, and three year fawn survival.

3. When buck harvest and spring fawn survival reach plan goals over a three year average with an increasing trend, an antlerless hunt will be recommended to maintain the population goal.

#### E. Law Enforcement

Objective: Increase the apprehension rate of violators by five times (above existing level).

##### Recommended Prescriptions

1. Develop agreements between MNF, S-TNF, and patrol wardens to allow intermittent use of Forest Service out-stations during summer and fall seasons.
2. Coordinate enforcement of deer regulations with other law enforcement agencies (USFS, BLM, Sheriff) and formally establish operating procedures to increase communications and enforcement capabilities.
3. Eliminate State of California personnel regulation constraints to allow donation of patrol time over 40 hours/week.
4. Develop a Reserve Warden program.
5. Develop and submit recommendation to modify tag and validation program.
6. Continue to publicize CALTIP program through news media contacts and reports of successful cases.

#### F. Communication of Information

Objective: Provide information on deer herd conditions and management to all interested publics and develop a system for incorporating public input into management programs.

##### Recommended Prescriptions

1. Make a summary of this Plan available to all interested publics.
2. Attend meetings of local clubs, civic organizations, and the Fish and Game Advisor to keep them informed of Herd Management program.
3. Make new or updated herd information available to County Planning Department.
4. Have annual coordination meeting with CDF to transmit deer habitat priorities into their SB1704 Chaparral Management program.
5. Prepare and submit annual report on deer harvest, herd condition, and proposed management actions to County Board of Supervisors, cooperating Government Agencies.

#### G. Review and Update

1. Have annual meeting with MNF, S-TNF, BLM to prepare annual objectives, and cooperative program of work, including Sikes Act updating.

2. Review Herd Plan upon completion of Thomes Creek Subherd study. Incorporate any needed changes.

3. Transmit additions, changes to all Plan holders.

## VII. MANAGEMENT ALTERNATIVES

Management of deer is essentially concerned with the output of a natural resource (species of wildlife) for use and enjoyment by outdoor recreationists, both hunters and nonconsumptive users. As such, management alternatives must first define various population levels that can be reached and maintained through time, requiring different levels of management intensity for each. Such population goals express alternative levels of resource output, each with a unique level of costs and trade-offs associated with its implementation.

Management Alternative 1 - Maintain the current population level through minor habitat enhancement programs.

### Predicted effects

1. A continued cyclic harvest averaging approximately 1,200 bucks is expected, less than the estimated biological potential of the range.

2. Minor (localized) level of deer conflict with other land uses (agriculture, subdivision, intensive range and timber management) will continue, since deer densities are relatively low throughout the range as a whole.

3. Failure to achieve the State-wide goals of the "Plan for California Deer," AB-1521, "Investing for Prosperity," and failure to respond to a significant public concern for the enhancement of the herd.

4. Deer numbers will probably increase as a result of present CDF projects associated with SB-1704, Bureau Land Management and U. S. Forest Service prescribed burning programs for multiple resource benefits. The increase, however, will be unmanaged, partly inaccessible, and less than its potential under coordinated resource management programs.

5. Direct additional costs to the CDF&G would be relatively low. No significant trade-offs would result related to other resources, since no other values are foregone or intensively coordinated, with benefits for deer.

Management Alternative 2 - Restore the population to historic levels associated with the early to mid-1960's.

### Predicted Effects

1. Annual reported harvest of up to 2,000 bucks could result.

2. High deer densities would conflict at least locally with other resource programs. Serious local conflicts may be expected with agriculture, timber and oak regeneration, and maintenance of a balance between all seasonal habitats, promoting depredation requests and possibly controlled sport hunts for does.

3. Hunting and nonconsumptive use should significantly increase, bringing pressure to recreational facilities and road systems, especially on public lands.

4. Direct cost to the CDF&G will significantly increase, including additional manpower and funding for law enforcement and to support habitat improvement and coordination with other resources to minimize conflicts/competition.

#### Selected Management Alternative

Management Alternatives 1 and 2 (reached through habitat improvement and improved protection) set up technical, social, and economic boundaries of the management situation, and define the extremes of the Herd situation as related to the range of buck harvest (1,200-2,000). The following conclusions can be drawn from existing data which tend to identify specific population levels within this range (1,200-2,000) as viable alternative management goals.

1. The effects of SB-1704 on private land and the relatively new multiple resource management programs on public land could result in an up to a 30% increase in the deer population by 1992 (harvest of 1,500 bucks) without significant project expense, if climatic conditions are favorable and management efforts are coordinated.

2. "A Plan for California Deer" recommends mid-1960's levels as an appropriate management goal for Deer herds State-wide (harvest of 1,700-2,000 bucks in West Tehama County).

3. A sustained harvest level in excess of 2,000 bucks cannot be reached within the Yolla Bolly Herd without including modification of other factors that keep fawn survival low, including a significant reduction of predation.

#### Selected Management Population

Annual harvest of 1,700 bucks through coordination of other resource management programs at minimum expense, with harvest about equally divided between the subherds.

#### Economic Value of Deer

The economic value of the Yolla Bolly Deer Herd is important to the cities, towns or communities within or near its boundaries. Such values are difficult to determine, but a number of approaches have been taken to arrive at definite values for either individual deer or the recreational costs incurred for sport hunting or nonconsumptive utilization.

The value of a unit of wildlife (deer) is commonly regarded as immeasurable or intangible, that is, having a combination of values for: (1) aesthetics; (2) gauging quality of life; (3) maintaining ecological balance; and (4) providing hunting satisfaction. Obviously, deer have a value, and values are generally indicated by replacement costs. This is infeasible, and an alternative to replacement values, is a method to determine the economic benefits derived from hunting.

Research by the Washington Game Department (Oliver, Young and Eldred, 1975) determined the economic value of deer based on recreationalist's expenditures for food, lodging, travel, and equipment. A short form for bioeconomic evaluation of wildlife was developed for Washington State that determined the daily expenditure for deer hunting at \$25.85 in 1975. Considering inflation and current economic conditions, an estimate \$50.00 a day is conservative for 1982.

During the period 1979-81 an average of 15,594 deer tags were sold annually for Zone B-3. The average buck kill, including allowances for crippling losses and unreported kill for the same period was 2,532. The annual hunter survey conducted by the Department of Fish and Game indicated the average deer hunter spent 5.9 days hunting in 1980. Utilizing the above data, an average of 92,005 man-days were expended during 1979-81. At \$50.00 per day the annual economic benefit derived from hunting the B-3 Zone amounted to \$4,600,250.00. Stated in terms of the number of bucks bagged, the cost per animal amounted to \$1,817.00 each. The Yolla Bolly Herd comprises 60-65% of the B-3 Hunting Zone, indicating a recreation value approaching \$3,000,000.00.

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1979 Alder Springs Deer Herd Management Plan. California Department of Fish and Game.
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1974 A Comparison of Blacktail Deer Fawns from Oak, Woodland, and Chaparral Vegetation Types. M.S. Thesis University of California, Davis.



May 6, 1987

### Yolla Bolly Deer Herd Plan Update

The following material is intended to update the information found in the tables of the 1982 Yolla Bolly Deer Herd Management Plan.

Table 3 (Composition Data)

Year	Fall (per 100 does)			Spring (per 100 does)	
	Bucks	Fawns	Sample	Fawns	Sample
Fall-Spring					
1982-1983	21	40	251	33	457
1983-1984	23	45	326	39	389
1984-1985	18	42	267	34	
1985-1986	11	39	345	26	258
1986-1987	25	30	98	24	239

Table 4 (Reported Buck Harvest)

Year	Season	Bag Limit	Reported Deer Kill		
			Tehama	Shasta	Total
1982	9/25 - 10/31	2	776	270	1046
1983	9/24 - 10/30	1	370	84	454
1984	9/22 - 10/28 (B-3)	1	567	133	700
1985	9/21 - 10/20 (B-3)	1	398	42	440
1986	9/20 - 10/5 (D-18)	1	354	84	
	9/20 - 10/19 (B-3)	1	33		471

*David A. Walker*

David A. Walker  
Tehama Unit Biologist

May 6, 1987

Yolla Bolly Deer Herd Plan Update

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*David A. Walker*

David A. Walker  
Tehama Unit Biologist

MAY 6, 1987  
~~November 19, 1986~~

Table 5 (Total Buck Kill)

<u>Year</u>	<u>Tehama Co.</u>	<u>Plumas Co.</u>	<u>Butte Co.</u>	<u>Lassen Co.</u>	<u>Shasta Co.</u>	<u>Total</u>
1983	743	453	120	72	67	1455
1984	1555	592	183	110	101	2541
1985	1794 (*158)	360	146	72	91	2463
1986	1554 ( 41)	712	138	171	145	2720

\*( ) Private Land Wildlife Management Area Doe Harvest

David Walker  
Wildlife Biologist

DW/mrw

(Please provide detailed information for every item listed below which is applicable to your deer herd or area. Where possible, please provide factual information based upon empirical evidence or data which can be referenced.)

OUTLINE OF INFORMATION NEEDED FOR THE  
ENVIRONMENTAL DOCUMENTATION OF DEER HUNTING

Deer Herd: Yolla Bolly (Zone D-18) \_\_\_\_\_

County: Tehama, Shasta, Trinity, Glenn \_\_\_\_\_

A. Description of the Deer Herd Management Unit

1. Herd Condition - (please cite source of data or information)  
Source: Observation, locker plant carcasses, size of antlers

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

Excellent      Very Good      Good      Fair      Poor      Very Poor

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

No quantitative information is available on doe conditioning except through the PLM program which showed most does in fair to poor condition in 1987 and 1988. This information may not be applicable to the rest of the herd since the PLM deer are mostly residents. Buck carcasses and antlers checked at locker plants appeared to be in better condition in the fall of 1989 than in prior years, as did live animals. Poor conditioning was the rule during the 1987-89 drought years. Doe carcass weights did not show a clear trend during 1987-88.

Reference: Private Lands Management area report, locker plant carcass check.

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

Fawn survival rates have been low, averaging 28.5/100 does in the last 4 years. This is a result of the poor forage production during several years of below average precipitation. The age class of bucks (as indicated by antler development) has increased due to the restrictive hunting strategy implemented in 1986 and I assume that the doe population is also quite old based on the poor recruitment in recent years. Early indications are that fawn recruitment will increase this coming year due to better forage conditions.

Reference: DFG herd composition counts, PLM reports.

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)

		*Smith Method (Avg. Multiplier)	**Longhurst	***Dasman
1963-est. Smith Method	31,076	1982 19,455	25,104	27,196
1981 (last year of plan)	18,026	1983 8,444	10,896	6,356
		1984 13,020	16,800	9,800
		1985 8,184	10,560	5,720
1988-average 3 methods =	10,473	1986 9,002	11,616	10,164
		1987 7,756	10,008	5,421
		1988 9,188	11,856	10,374

\* This estimate uses the average buck-to-population multiplier computed from the last 5 years of Smith record populations. (Buck reported x 18.6= population)

\*\* Uses multiplier of 24 used by Longhurst(1952)

\*\*\* Uses multiplier of 24 from chart by Dasman(1952)

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

<u>Year</u>	<u>Bucks</u>	<u>Harvest</u>		<u>Spring</u>	
		<u>Antlerless</u>	<u>Bucks</u>	<u>Fawns</u>	<u>Fawns</u>
-----SEE ATTACHED CHARTS-----					

4. Deer Hunting

- a. Past and current hunting strategies' effects on:

1. deer numbers

Bucks only hunting has been the strategy in effect since 1960. This strategy removes about 5-6 percent of the herd population from October to June, when incoming fawns take their place. This level of harvest has had no significant impact on the overall population over the years. Forage availability appears to limit deer numbers. Doe hunts in the late 50's removed an additional 2-6 percent of the population from October to June, but those does were also replaced at fawn drop. No significant changes in the population have resulted or will result from the proposal.

2. herd composition

The current harvest strategy is to maintain a post season buck ratio of 25-30/100 does through manipulation of hunter take. In the past five years, restrictive hunting regulations have allowed the buck ratio to reach 34 in 1988 - evidence that the regulations effective in reducing harvest (buck or doe) allow little room in the population for fawns to survive, thereby keeping fawn ratios low.

3. herd health

The low level of removal that bucks only harvest yields, insures that the remaining animals, especially does and fawns, are in competition for forage resources and that the health of the herd varies with weather cycles. Wet years allow the herd to expand and dry years cause decline. When buck ratios are below 10/100 does the potential exists for delayed breeding which could result in fawn drop occurring, in some does, past the optimum (early summer) period. Recruitment could decline in this circumstance. The cumulative impact of buck hunting on herd health is similar to, but less drastic than, the "no hunting" alternative. Current legislation does not allow the Department to authorize doe hunts which would keep the population within the range carrying capacity.

b. Future and proposed hunting strategies' effects on:

1. deer numbers

The proposed buck hunting strategy is similar to the program in place over the past 4 years. The population would be reduced by 4-5 percent during the months of November to June each year. June recruitment would fill in for those bucks harvested and the population would be regulated by forage availability. If legal road blocks could be removed, a doe harvest of up to 5 percent of the population would reduce the November to June population. In June, fawns would replace the does that were taken. The long term impacts of the hunt on the deer numbers the rest of the year would be insignificant.

2. herd composition

The proposed buck hunt would try to maintain the post season ratio at a minimum of 30/100 does. This is the current goal and it insures adequate breeding stock as well as an age structure with some mature bucks. The fawn ratio would continue to be low and controlled by forage availability. If a doe hunt could be implemented the buck ratio would go up as young are recruited and more young (higher fawn survival rates) would be recruited because each fawn would have more nutrition available. If implemented, a doe harvest program would lead to a long term increase in buck and fawn ratios.

3. herd health

Since the proposal is a continuation of the existing program, herd health will be regulated by existing forces. The proposed buck hunt will have a slight positive impact on herd health over the no hunt alternative. With a reduction of only 5 percent of the population during the 7-8 months of the year. forage availability will remain the dominant factor regulating herd health. If an additional doe harvest could be implemented, substantial benefits over the existing program

5. Illegal Harvest

Illegal harvest occurs at a rate that can only be estimated. Most estimates by law enforcement personnel (as cited in Herd Plan) indicate that the illegal harvest exceeds the reported kill. Some information suggests that deer are taken in proportion to the ratios

in the population. Since poaching has been a source of mortality since the development of regulations and the population is still regulated by forage availability, poaching is more of a social and legal problem - not a significant short or long term influence on the population.

6. Other

B. Non-human Effects on Deer

1. Weather

Gross changes in weather patterns may be the greatest source of fluctuations in the deer population. Wet cycles generally lead to increases, while dry cycles lead to decline.

a. drought

Drought has a significant negative impact on herd population, composition and health. Below average rainfall in each of the last three years has led to poor forage and the timing of the rains has not been helpful in stimulating forage production. Poor forage years result in the loss of adults, lower fawn recruitment and decreased body conditioning in the remaining animals.

b. early storms

Early storms can have several impacts - some positive and some negative. Hunting conditions improve with early storms because more bucks will begin to move and hunters can operate more quietly when leaves are damp and soft. If early storms force migration before fawns are strong, stream crossings, highway crossings, predation and energy loss can cause higher mortality. Early wet storms can also provide excellent forage conditions during the coming winter and spring leading to better conditioning and survival.

c. mild winters

Harsh winters are seldom causes of mortality in this herd. Mild winters do allow for the preservation of body conditioning. However, if mild winters are also dry winters, forage conditions may be poor - resulting in poor recruitment and population declines. Some data (D.O. Smith unpublished) indicates that fall precipitation overshadows the precipitation received in winter as regards fawn recruitment.

2. Predators

Predator levels (Mtn. Lion, coyote, bear) are high based on sightings, depredation reports, rancher observations, specific studies in other parts of the state and tag returns (bear). However, there does not appear to be a significant impact

3. Disease and Parasitism

Blue tongue has been a major cause of mortality since the completion of the herd plan, causing an estimated loss of up to 10,000 animals in the early 1980's. Chronic, minor losses have occurred each year since then. However, the 1987-89 drought reduced the carrying capacity of the land to the point that forage availability is once again believed to be limiting factor in the herd. Nearly all deer show some signs of parasite load (fleas, ticks, etc). This appears to be normal for this herd.

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

1. Effects Upon Species of Special Concern/TE.

See attached list.

a. Changes in local populations

No changes in local populations of rare, threatened, endangered or species of special concern are anticipated due to the proposed project.

b. Changes in regional and statewide populations

No change in regional and statewide populations.

2. Effects Upon Other Wildlife Species

a. Changes in local populations

The proposed action is a continuation of the program in effect for several years. No changes are anticipated.

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

a. Hunting

The proposed project is a combination of the program in effect for several years. Hunter quotas may be adjusted based on the number of bucks available and anticipated hunter success. A decrease in the number of hunters allowed could reduce the recreation available to hunters, and an increase in hunters allowed could increase recreation.

b. Nonconsumptive

No changes are anticipated as a result of the proposed project. A reduction in the number of hunters could decrease the nonconsumptive use by those in the party who do not hunt, and an increase in hunters allowed could cause an increase in nonconsumptive use.



- c. Nonhunting  
No changes are anticipated.

4. Effects Upon Human Populations

- a. Housing  
No effects anticipated.

- b. Transportation  
The proposed action is a continuation of the program in effect for several years. No additional stress is anticipated on transportation systems. If reduced numbers of hunters are allowed, transportation impacts would be reduced. If increased numbers of hunters are allowed, an additional, minor stress on transportation systems would occur. There impacts are not projected to be significant.

- c. Public services  
No effects anticipated.

- d. Energy  
No changes are anticipated. A reduction in the number of hunters allowed would cause a slight decrease in the amount of energy consumed in this activity. An increase would cause a slight increase in the amount of energy consumed.

- e. Human health  
No changes are anticipated. A change in the number of hunters would cause a slight, perhaps insignificant, impact on human health due to the exercise involved in hunting activity.

- f. Aesthetics  
No effect anticipated.

- g. Cultural resources  
No effect anticipated.

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

See Table 6 - Yolla Bolly Herd Plan, for summary. About 1500 acres were transferred from private to ELM at the Paynes Creek Recreation Area and a similar amount was transferred from private to DFG as an addition to Tehama Wildlife Area. These are not land-use changes, however. If additional development is allowed in the foothills or mountains, it would decrease the carrying capacity of the range for deer. No major changes expected in the near future due to zoning restrictions.

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  
Few wildfires have occurred in Western Tehama County since the herd plan was written in 1982. According to CDF reports, the Lowery fire (1984 - 2,645 ac.) and the Beegum fire (1989 - 741 ac.) have been the only major herd range fires during this period. Several burns have been conducted under the CDF Vegetation Management Program, which totaled about 1,000 acres. Most of this acreage has been accomplished by landowner's working under the DFG's Private Lands Management Program. Those areas burned have experienced regrowth of key browse species such as backbrush and chamise, a higher production of grasses and forbs and sprouting from species such as live oak. The overall impact has been an increase in quantity and quality of forage and greater availability of water. These impacts last for several years, but over the long term, the vegetation will return to older age classes and become of lower value as forage.
2. Livestock Grazing  
Grazing practices have changed little since the Plan was written. As with the deer population, cattle can utilize the range best when wet years produce abundant forage. During these years, cattle have little impact on the range. During dry cycles, cattle are forced to take browse, mast, and spend more time in riparian areas. Competition with deer for scarce resources can result and damage to range vegetation can occur. Such was the case during the past three dry years in some locations.
3. Logging  
Logging has been a factor in Yolla Bolly herd ranges (primarily summer) since the 1800's. Currently the US Forest Service is entering previously unlogged areas. Initially, this logging opens the tree canopy, promoting growth of browse, grasses and forbs, resulting in positive impacts for deer. This is short lived if plantations and brush control activities make this forage unavailable to deer. This is the current program on some Federal lands. Most private lands use some form of selective cut and rely upon natural regeneration - providing better long-term forage/cover values. Proliferation of roads has made many areas of lesser value to deer due to traffic influences and habitat loss.
4. Drought  
Drought during the past three years has impacted Tehama County deer ranges. Production of grasses and forbs declined to the point that cattlemen were pulling cattle from the range and some cattle were lost. Conditions began to improve with spring 1988 rains and appear to be excellent in the fall of 1989. Drought has been a factor throughout the history of the herd, but has insignificant long term impacts unless the drought is a part of a long term climatic change. The Burrow's Ranch (PLM) has reported as low as 33 percent of normal rainfall during one of the drought years.
5. Other

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

1. Habitat Manipulation Projects

Burns, spring development, planting of mahogany, fertilization and restoration of glade areas are being accomplished through the Mendicino National Forest. Approximately 2,600 acres are impacted by 1988-89 and 1989-90 projects.

2. Investigative Projects

A study on deer - lion relationships was proposed for last year, but not funded. If appropriate, another submittal of this project could be proposed.

D-8	Hume					(31)	(70)	25
	Kaweah					(18)	(39)	25
	Tule					(34)	(57)	30
	Greenhorn					(28)	(35)	20
	Kern River							25
	D-8 ZONE TOTALS	9756	409	4.19%	4.25%	(27)	(55)	25
D-9	Piute	2000	121	6.05%	6.75%	20 (27)	18 (34)	25
D-10	Tejon	1021	120	11.75%	11.26%	(23)	(45)	25
D-11	Angeles	6373	326	5.12%	3.34%			
D-12	Burro	1082	46	4.25%	2.26%	(24)	(46)	25
D-13	Santa Barb./Ventura	4000	269	6.73%	7.90%	east (71)	(12)	20
D-14	San Bernardino	3000	223	7.43%	7.27%	west 35 (17)	26 (40)	25
						45 (30)	47 (23)	
D-15	Santa Ana Mnts.	1408	92	6.53%	5.76%			
						hunted 21 (8)	38 (21)	
D-16	San Diego					unhunted 30 (25)	36 (15)	20
						19 (22)	39 (44)	
	San Jacinto							
	D-16 ZONE TOTALS	5158	318	6.17%	3.27%	22 (25)	38 (30)	20
D-17	Inyo Mountains	1000	92	9.20%	10.70%	26	74	30
D-18	Yolla Bolly	3462	475	13.72%	7.37%	25 (13)	30 (26)	20
X-1	McCloud Flats	12501	1930	15.44%	14.90%	17 (19)	45 (49)	12
X-2	Devil's Garden	1200	241	20.08%	22.67%	11 (16)	64 (55)	15
X-3a	Adin	2550	390	15.29%	13.73%	17 (13)	63 (54)	20
X-3b	Warner Mountains	4550	603	13.25%	13.73%	17 (25)	55 (64)	20
X-4	West Lassen	1700	471	27.71%	20.83%	25 (23)	42 (51)	25
X-5a	East Lassen	250	96	38.40%	34.18%	11 (14)	32 (29)	25
X-5b	East Lassen	500	255	51.00%	60.15%	24 (20)	38 (39)	25
X-5c	East Lassen	1000	158	15.80%	13.50%	9 (15)	48 (46)	25
X-6	Doyle	3000	693	23.10%	22.73%	14 (15)	46 (43)	20
X-7a	Loyalton/Truckee	1000	225	22.50%	27.00%	19 (12)	48 (45)	20
X-7b	Loyalton/Truckee	500	110	22.00%	20.14%	16 (12)	47 (51)	20
X-8	Carson River	700	183	26.14%	20.17%	15 (20)	38 (43)	25
						(6)	(52)	20
X-9	Mono Lake					6 (15)	60 (61)	20
	Casa Diablo					7 (7)	20 (35)	20
	Sherwin Grade					7 (7)	25 (35)	20
	Buttermilk					28 (26)	23 (32)	20
	Goodale (north)					37 (32)	31 (32)	35
	Goodale (south)							
	X-9 ZONE TOTALS	8895	751	8.44%	14.06%	16 (16)	33 (38)	20
X-10	Monache	850	199	23.41%	33.00%	27 (47)	39 (51)	25
X-11	Eastern Tehama	13556	2351	17.34%	14.39%	18 (24)	40 (47)	20
X-12	West Walker					14 (10)	54 (51)	20
	East Walker					11 (15)	48 (44)	20
	X-12 ZONE TOTALS	3000	724	24.13%	25.00%	12 (13)	51 (50)	20
	STATEWIDE TOTALS	281689	29614	10.51%				

YOLLA BOLLY DEER HERD PLAN  
1990 UPDATE

Yolla Bolly Deer Herd Harvest

<u>Year</u>	<u>Bucks</u>	<u>Antlerless</u>
1990	516	0

Yolla Bolly Deer Herd Composition Data

<u>Year</u>	Fall: <u>Bucks/100 Does</u>	<u>Fawns/100 Does</u>	<u>Sample Size</u>
1990	23	48	502

YOLLA BOLLY DEER HERD ACTION PLAN

A. INVENTORY AND INVESTIGATIVE ELEMENT

<u>PRESCRIPTION NUMBER</u>	<u>DESCRIPTION OF PROCESS</u>	<u>RESPONSIBLE AGENCY</u>	<u>TIMING</u>	<u>REMARKS</u>
1.	Fall herd composition . . Continue existing surveys . . . . Map survey routes . . Spring herd composition . . Classify 250 animals/subunit . .	Tehama Unit Manager Shasta Unit Manager	Late November Mid-March	Annually & continuing
<b>Note:</b> FS and/or BLM may assist, and will accomplish surveys upon request, in emergency.				
2.	Spot kill mapping . . Continue existing procedure . . . . Transmit copy to MNF, S-TNF, RHU (BLM) . .	Tehama Unit Manager Shasta Unit Manager	January-February	Annually & continuing
3.	Locker checks . . Continue existing checks . .	Tehama Unit Manager	Hunting season	Jack's Wholesale Meats Baker Road, Red Bluff
4.	Thomes Creek Deer Study (1980-82) . . Provide \$4,000 via collection agreement to DFG . . . . Transfer telemetry data to type maps . . . . Complete report & transmit . .	Mendocino NF Sipekrek (FG) R1	12/82 4/82 1983	
5.	Collection of 20-25 deer in Thomes Creek . . Propose collection to State Office . . . . Collect 20-25 deer . . . . Analyze results, report . .	R1 R1 R1 R1	1982 3/83 1984	Completed
6.	Telemetry in Beegum Subunit . . Propose trapping/monitoring to Region . . . . Obtain Department approval . . . . Refurbish collars . . . . Complete as funded . .	Tehama Unit Manager R1 R1 Tehama Unit Manager, S-TNF	2/83 5/83 83/84 1985	Shasta-Trinity to provide about 30 man-days
7.	Pellet transects . . Continue existing surveys in Thomes subunit . . . . Analyze for shifts in use related to habitat improvement . .	Tehama Unit Manager Tehama Unit Manager Shasta Unit Manager	Annually 1988, 1993	
8.	Oak firewood sales . . Determine if any Agency (CDF, SCS, Agri. Comm, etc.) presently monitors program . . . . Input Ad-hoc Committee of Bd. of Forestry as to need for monitoring . . . . Follow Bd. Forestry actions . .	R1 State Office	2/83 2/83 1983	No present monitoring
9.	Plantation browsing . . Incorporate browse data in present survival count surveys . . . . Seek Crane & L-P incorporation into their survey processes . . . . Analyze data . .	MNF, S-TNF MNF ALL	1983 & continue 1983 1988, 1993	

<u>PRESCRIPTION NUMBER</u>	<u>DESCRIPTION OF PROCESS</u>	<u>RESPONSIBLE AGENCY</u>	<u>TIMING</u>	<u>REMARKS</u>
10.	Interagency evaluation	R1, MNF, S-TNF	Annually	
	.. Continue annual coordination meeting . .			
	.. Recommend to Regional Manager inclusion of BLM to Meeting . .	Tehama Unit Manager	3/83	
	.. Develop annual Cooperative Work Program . .	R1, MNF, S-TNF	1984 & continuing	
11.	Monitor Predator Programs	Tehama Unit Manager Shasta Unit Manager	Annually	
	.. Annually gather commercial trapping records, F & WL coyote gunning statistics, depredation requests for cougar & dogs, etc. . .			
	.. Analyze data. If trend develops, analyze conclusion against deer problems . .	Tehama Unit Manager Shasta Unit Manager	Annually	
12.	Habitat improvement monitoring	Tehama Unit Manager	Annually	
	.. Spot kill records for shift in time or location. .			
	.. Shift in seasonal (winter) ranges . .	Shasta Unit Manager	Annually	
	.. Develop a program using Landstat to monitor vegetative change over time (Rx program) . . . .	MNF	1985	
	.. Correlate type maps over time . .	MNF, S-TNF	1993	
<u>B. MORTALITY CONTROL ELEMENT</u>				
1.	Escape cover in Thomas Subunit	MNF	Continuing	Done
	.. Change silvicultural system to mostly clearcutting . .			
	.. Retain large slash for escape cover . .	MNF	Continuing	See Element C/8
	.. Increase understory vegetation . .			
	.. FG input to TS should relate specific escape needs . .	MNF Tehama Unit Manager Shasta Unit Manager	Continuing Continuing	See Element C/2
2.	Three Prong fawn study	Sipirek Sipirek R1	1982 1983 1983	Done Done
	.. Repeat 1981 trapping & telemetry. .			
	.. Analyze 1981/82 data . .			
	.. Transmit report . .			
3.	Coordinate public use	Tehama Unit Manager Shasta Unit Manager MNF	4/83 Continuing	
	.. Analyze telemetry data when added to type maps . .			
	.. Incorporate findings of initial report into Corning RD Timber Sale, recreation, firewood, Allotment programs . .			
	.. Include findings of R-3 meadow fencing effects into Yolla Bolly programs . .	All	1984 forward	
	.. Remove unauthorized cattle from Yolla Bolly Wilderness . .	S-TNF	1983 forward	

<u>PRESCRIPTION NUMBER</u>	<u>DESCRIPTION OF PROCESS</u>	<u>RESPONSIBLE AGENCY</u>	<u>TIMING</u>	<u>REMARKS</u>
4.	Road Mgt. Program <ul style="list-style-type: none"> <li>Input needed seasonal closures . . .</li> <li>Accomplish &amp; certify through LMP and/or T.S. process . . .</li> </ul>	Unit Managers & Wardens S-TNF, MNF	1983/84 1984/85 forward	
<u>C. HABITAT ELEMENT</u>				
1.	Rx Chaparral Program <ul style="list-style-type: none"> <li>1,000 ac/year. Program &amp; accomplish . . .</li> <li>500 ac/year. Program &amp; accomplish . . .</li> <li>1,000 ac/year. Program &amp; accomplish . . .</li> <li>Propose 1,000 ac. program in Ditch Grade area to CDF . . .</li> <li>Review &amp; prioritize SB 1704 applications received by CDF . . .</li> <li>Review MNF, S-TNF program plans . . .</li> </ul>	MNF S-TNF RMU Shasta Unit Manager Shasta Unit Manager Tehama Unit Manager Unit Managers	Annually Annually Annually 1983 Annually Annually Annually	See Element F/4
2.	Rx Grass Program <ul style="list-style-type: none"> <li>Program &amp; accomplish . . .</li> </ul>	MNF, S-TNF	Annually	
3.	Sunflower CRP <ul style="list-style-type: none"> <li>As per Action Plan . . .</li> </ul>	CDF/MNF	As scheduled	
4.	Thomes Creek CRP <ul style="list-style-type: none"> <li>As per Action Plan . . .</li> </ul>	MNF	As scheduled	
5.	Crane-Pacific CRP <ul style="list-style-type: none"> <li>As per Action Plan . . .</li> </ul>	MNF	As scheduled	
6.	Riparian protection <ul style="list-style-type: none"> <li>Coordinate through planning process: IS program Rx program Allotment program . . . Federal riparian w/SONRMS Monitor through Landstat program . . .</li> <li>R3-type CCC fencing program . . .</li> </ul>	MNF, S-TNF, RMU MNF, S-TNF MNF MNF MNF, S-TNF, RMU MNF, S-TNF MNF	Continuing 1983 Forward 1985 1984 1993	into contract into prescription into annual permittee plan LMP Discuss at annual meeting
7.	Glade/meadows <ul style="list-style-type: none"> <li>Develop inventory of type for plan revision . . .</li> <li>Allow no conversion, acreage loss (roads) . . .</li> </ul>	All All Unit Managers	Continuing Continuing	Monitor other program effects
8.	Preferred browse <ul style="list-style-type: none"> <li>Management direction for ongoing programs. Include as LMP prescription . . .</li> </ul>	MNF, S-TNF	Continuing	Unit Mgrs. to monitor
9.	Rx slash <ul style="list-style-type: none"> <li>Program &amp; accomplish . . .</li> </ul>	MNF, S-TNF	Annually	
10.	Underburning <ul style="list-style-type: none"> <li>Program &amp; accomplish . . .</li> </ul>	MNF	Annually	
11.	Fire Mgt. Plan (Yolla Bolly W.A.) <ul style="list-style-type: none"> <li>Set up ID team . . .</li> <li>Prepare plan &amp; approve . . .</li> </ul>	MNF, S-TNF, DF&G Regional Forester	1984/85 1986	Subject to Funding



<u>PRESCRIPTION NUMBER</u>	<u>DESCRIPTION OF PROCESS</u>	<u>RESPONSIBLE AGENCY</u>	<u>TIMING</u>	<u>REMARKS</u>
12.	Preferred browse (planting)	MNF	1984 forward	K-V, Sikes Act
13.	Oak on migration routes	MNF, S-TNF	Continuing	Unit Mgrs. monitor
	.. Manage primarily for acorn crops			
	.. Develop provisions for regeneration	MNF, S-TNF	Continuing	
14.	Vegetative diversity	MNF, S-TNF	Continuing	Unit Mgrs. monitor
	.. Mgt. direction for ongoing programs. Include as LMP prescription			
15.	Sikes Act	MNF, S-TNF All	Annually Annually	
	.. Program & accomplish			
	.. Update plan yearly			
16.	Grazing systems	MNF S-TNF	Annual permit- tee plans 1984 forward	Unauthorized use reported in portions of Yolla Bolly Wilderness.
	.. Riley Ridge, W. Log Springs Allotment			
	.. Cold Fork Allotment			
17.	Plantation release	MNF, S-TNF	1983 forward	
	.. Notify R1 of annual program plans			
	.. Review & input plans	Unit Managers	Annually 1983/84	
	.. Include as Mgt. prescription in LMP	MNF, S-TNF		
18.	Slash retention	MNF	1983 forward	
	.. Maintain an average of 3 large cull logs/acre in Thomas Sub-unit (range of 1-7)			
<u>D. UTILIZATION ELEMENT</u>				
1.	Inaccessible public lands	RMU RMU/R1	1984 1985 forward	
	.. Provide inventory			
	.. Develop Action Plan			
2.	Length of season	Shasta Unit Manager R1 Unit Managers	1983 forward Annually Annually	After season
	.. Calculate by "Smith method"			
	.. Recommend to Game Commission			
	.. Validate recommendation			
3.	Anterless harvest	Unit Managers R1	Annually When appropriate	
	.. Monitor herd condition & outputs			
	.. Develop recommendation			
<u>E. LAW ENFORCEMENT ELEMENT</u>				
1.	Use of F.S. facilities	MNF, S-TNF	1983	
	.. Existing Memo. of Understanding provides authority for Dept. use of F.S. facilities. Cooperation should be offered to Wardens, agreements reached if appropriate			

<u>PRESCRIPTION NUMBER</u>	<u>DESCRIPTION OF PROCESS</u>	<u>RESPONSIBLE AGENCY</u>	<u>TIMING</u>	<u>REMARKS</u>
2.	Coordinated enforcement . . . Existing informal agreements should be formalized & strengthened . . .	All	1983/84	
3.	Patrol time . . . Research Dept. of Personnel Administration contract rules . . . Propose Volunteer Agreement w/Wardens . . . Work out proposal (if allowable) & receive R1 approval . . . Recommend to State Office . . .	Manzell MNF Corning DR Manzell R1	3/83 3/83 6/83 9/83	Corning RD
4.	Reserve Warden Program . . . Underway. Recommendations to State Office . . .	R1	1983	
5.	Tag modification . . . Underway. Continue to recommend State Office . . .	R1	1983	
6.	CALTIP Program . . . Underway. Continue . . .	All	Continuing	

F. COMMUNICATION OF INFORMATION

1.	Plan summary . . . Prepare summary . . . Distribute to publics . . . Make available at District Offices . . .	State Office R1 Yolla Bolly District Corning District	1983 1984 1984	
2.	Local meetings . . . Underway. Continue . . .	Unit Managers	Continuing	
3.	Planning Commission . . . Copy of Plan to Commission . . .	Tehama Unit Manager	1983	
4.	SB 1704 Program . . . Schedule meeting w/CDF, develop priority list of applications . . .	Unit Managers	Annually	
5.	Report to Supervisors . . . Program & accomplish . . .	Unit Managers	Annually	

G. REVIEW AND UPDATE ELEMENT

1.	Annual meeting . . . Program & accomplish . . . 5 year Sikes program update & addition . . .	R1 All	Apr-July annually Jan-Mar. annually	
2.	Herd Plan review . . . When Stiprek Thomas Creek Study published . . .	All	Est. 1984	
3.	Transmit additions, changes . . . Program distribution . . .	Tehama Unit Manager	As needed	