

# THE LASSEN-WASHOE INTERSTATE DEER HERD

## A STATUS REPORT

### RECENT STUDIES AND IMPACTS

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#### INTRODUCTION

The Lassen-Washoe Deer Herd is an interstate, migratory, mule deer herd located astride the California-Nevada state line north and west of Reno, Nevada. The Herd winters primarily in Lassen County, California, and Washoe County, Nevada, with major summer ranges in Lassen, Plumas, Sierra, Nevada and Placer counties - all in California.

In California, the Lassen-Washoe Interstate Herd is composed of two migratory mule deer herds - the Doyle and Loyalton-Truckee. Use of common winter ranges along the state line and further east in Nevada results in the combining of these two herds into the one interstate Lassen-Washoe Herd.

The Doyle Herd, or the northern half of the Lassen-Washoe Herd, was in the 1950's probably one of the most extensively studied herds in the Western United States. During this period, the California Department of Fish and Game was very active in deer research. Research on this Herd in such areas as food habits, reproductive biology and range analysis still serve as baseline data for contemporary studies. A list of those involved in various studies on this Herd read like a "Who's Who" of California deer research. Included among the many who participated in studies are Blaisdell, Bischoff, Brunetti, Ferrel, Lassen and Leach.

#### THE LASSEN-WASHOE INTERSTATE DEER HERD COMMITTEE

In 1949 the Lassen-Washoe Interstate Deer Herd Committee was formed. It was composed of personnel from the California and Nevada Departments of Fish and Game, the Plumas, Tahoe and Toiyabe National Forests, the Susanville and Carson Districts of the Bureau of Land Management, local grazing advisory boards, local sportsmen, and other interested citizens. The purpose of the Committee was to act as a vehicle for an exchange of information, initiation of management research activities and to coordinate ongoing range analysis activities and long-term management objectives.

Interest in the Committee has vacillated over the years depending on the condition of the Herd and changes in hunting strategy. Generally, interest in the activities of the Committee outside of the public agencies has waned. In the 1950's, there was public participation in conducting herd composition counts and reading forage and pellet transects. This involvement does not exist today. Even the agencies have become more specialized in their activities. The Fish and Game Departments conduct herd composition counts while the land management agencies conduct their own forage surveys. There is a minimum of inter-agency coordination in these annual field activities. The agencies do jointly participate in the five-year ground cover survey. This is not intended as criticism of any agency or individual, just my evaluation of the existing situation. As workloads have increased for a relatively static force, agencies and their personnel tend to work in their own field of expertise.

Because of the politics involved in setting seasons and bag limits, the Committee in recent years has refrained from making any recommendations to the respective State Fish and Game Commissions. The welfare of the Herd does not receive the priority it should. Intra-agency conflicts over management objectives also add to this reluctance to take any aggressive action toward sound herd management.

Major steps have been made in the past few years in the direction of managing harvest in Nevada. Their adoption of a hunter quota system based on population estimates is surely the most sound step toward proper harvest management in the history of the Herd.

California's adoption of the zone hunting concept in 1978 was certainly a step in the right direction. It is doubtful if in the long term this will be adequate to properly control harvest in California. More stringent regulations will probably have to be considered in the near future.

The Herd Committee does continue to perform some useful functions. Its basic function is to act as a medium for exchange of information between agencies involved in management of the Herd and its habitat.

In 1973 a lightning fire consumed approximately 37,000 acres of winter range around Petersen Mountain. A contingency plan was developed to feed the deer on the winter range if it was found necessary to do so. Fortunately, the following winter was relatively open and problems did not materialize. This, however, did prove the ability of the Committee to work together and develop such a plan.

The Committee did act as a vehicle for the initiation of a comprehensive deer trapping and tagging project in the Herd to study and delineate critical habitats - winter ranges, migration routes, holding areas, and fawning areas. I will cover this study more a little later.

The most recent project of the Committee involves the mapping of the Herd's critical habitats and existing and proposed subdivisions and other developments within the Herd boundary. Herd maps with overlays and an evaluation of conflicts with these critical habitats will be presented to the planning departments of each of the counties involved with the Herd. It is hoped that this information will be used by the respective counties in their planning processes and impacts on this wildlife resource will be given the consideration it deserves.

#### HARVEST

Deer harvest in the Lassen-Washoe Herd is typical of harvest evidenced in mule deer herds in northeastern California and east of the Sierra Nevada crest. Buck harvests in both California and Nevada were fairly stable in the late 1940's and early 1950's. In 1954 a substantial increase of 64 percent occurred in the total buck kill. This was undoubtedly the result of the loss of several thousand deer during the severe winter of 1951-52, and the harvest of about 2000 antlerless animals, also in 1951. This reduction of total deer numbers resulted in increased fawn survival the following two years which evidenced itself in the buck kill in 1954. During this time period a four-week buck season was typical in California from about the third week in September through the third week in October. Hunter pressure increased substantially statewide from 300,000 deer tags in 1948 to nearly 400,000 tags in 1954. This year also marked the first of a three-year period of significant antlerless harvest from the Herd. At this time it was recognized that deer numbers were beyond the carrying capacity of the range and these antlerless hunts in both Nevada and California were conscious attempts to reduce deer numbers to alleviate increasing damage to the range. In 1954, antlerless hunting in Nevada resulted in the harvest of 1785 antlerless animals. No antlerless deer were taken in California in that year. In 1955, 3261 antlerless deer were taken in Nevada and 1859 in California for a total antlerless harvest of 5120. This was nearly 3 1/2 times the total buck harvest for that year. In 1956, a total of 4145 antlerless animals were taken - 1043 in Nevada and 3102 in California during the famous (or infamous) 1956 antlerless hunt.

During this three year period of 1954-56, a total of 11,050 antlerless deer were taken from the Lassen-Washoe Herd. During the same period the total buck harvest was 5065 - about one-half the antlerless harvest. In 1956, the all time high for deer tag sales occurred in California - nearly 450,000.

The public reaction to the 1956 antlerless hunt in California was immediate and vehement, and that may be an understatement. Those of us working in the field know that the ghost of '56 still haunts us occasionally here in 1980, nearly 24 years later. Approximately 20% of the 1956 antlerless kill in the inland or late season counties was taken from the Herd.

CAL-NEVA WILDLIFE TRANSACTIONS 1980

New restrictions were immediately imposed on the California Department of Fish and Game with the passage of the Busch Bill in 1957, by the California Legislature. This bill was considered by many as very detrimental to sound deer management. The negative aspects of the bill became apparent immediately. Deer management became a political football. Public hearings had to be held relative to antlerless and other types of special hunts. County boards of supervisors wielded a potential veto power over antlerless hunts.

The Busch Bill did, however, force the California Department to start gathering information in a more systematic manner and present it to the public in a more cohesive and comprehensive format. Public interest in such reports increased.

To no one's surprise, no antlerless hunts were conducted in the Lassen-Washoe Herd in 1957, neither in California nor Nevada which had annually harvested at least some antlerless deer from the Herd prior to 1957.

Buck harvests in this Herd in both Nevada and California remained static through 1958 - 1600 bucks harvested in that year. In 1959, the traditional four-week buck season in California was increased to five weeks ending November 1. The result was the harvest of 3280 bucks in California and 215 in Nevada. This was the all time record buck harvest from the Herd in California and in total harvest. Deer tags sales in California dropped slightly below the 400,000 mark in 1959.

This dramatic increase in buck availability was the result of greatly increased fawn survival during those years following the three years of herd reduction. Spring fawn ratios in 1957-59 were 76, 67 and 80 fawns per 100 does respectively. Such ratios have not been equaled since.

Following the record buck kill in 1959, buck harvest continued at a generally high level through 1966. Annual buck harvests averaged 2176 with California's portion about 90 to 95 percent of the total. Hunting regulations in California during that time period fluctuated greatly and underwent some fairly drastic changes. Six-week seasons prevailed in 1960 and 1961, ending the first weekend in November. In 1962 the season in Lassen County was reduced to four weeks while the remainder of the herd area had a five-week season. In 1964 the Lassen County portion was split - part a five-week season and part a three-week season. In the three-week area a 3-point regulation was imposed. In the remainder of the California portion a seven-week season and forked horn regulation was established.

Through 1967 this type of split season prevailed with Lassen County having a three-week season with a 3-point law and the remainder of the Herd having a six or seven-week season and a forked horn regulation.

Hunting strategies in Nevada changed from year to year. Strategies varied from bucks only to antlerless quotas, to the first half of the season bucks only and the last half either sex, to variations of these. However, antlerless harvests in Nevada did continue at various levels.

Antlerless harvests in California during the period 1960-67 were sporadic. During four years no antlerless harvest occurred. In 1961 and 1962 quota antlerless hunts occurred in Nevada and Placer counties and once in Lassen County. During 1965-67 quota antlerless hunts were conducted in Sierra and Placer counties resulting in a total antlerless harvest of 897.

Then, in 1967, disaster struck due to factors not fully understood. The immediate cause probably was the unusually long and hard winter of 1966-67. Precipitation in California was 77 percent above average. Possibly the reduced carrying capacity and history of range abuse finally caught up with us. We could speculate until the cows come home, but nonetheless, a dramatic reduction in deer numbers had occurred during the winter of 1966-67 and this was reflected in the 1967 kill.

In 1967 even with a seven-week season in California ending on November 12, allowing hunting during migration, the California harvest fell to 711, a reduction of 64 percent from the previous five-year average.

The harvest reduction in Nevada was significant, but the real impact was not felt until 1969. The 1967 harvest showed a reduction of 40 percent and the 1968 harvest an increase of 3 percent from the previous five-year average. Season length in Nevada showed a reduction from 36 to 29 days, but was still comparable to previous seasons.

In 1969 the bottom fell out for Nevada. The 1969 harvest was 88 percent less than 1968. That year's Nevada harvest is the lowest on record, equaled only by the 1974 kill. A total of only 21 bucks were harvested in Nevada. This indicates that Nevada in 1967 and 1968 was most likely harvesting resident deer.

At this time we entered a new era as far as harvest is concerned. Hunting seasons in California slowly changed to become much more conservative. The seven-week season in 1967 was reduced to six weeks in 1968. This was further reduced to four weeks in 1970 and again reduced to three weeks in 1974 and remained so until 1978. Buck harvest in California fluctuated during that time period averaging about 1000 bucks per year, but showing a downward trend when in 1974, 616 bucks were taken, the record low for California and the Herd.

Buck harvest in Nevada followed the same general trend as California, constituting 2 to 7 percent of the Herd's total buck kill, with the same record low in 1974.

Beginning in 1976 some drastic changes began to occur regarding hunting strategy. Following considerable controversy, Nevada adopted a statewide tag quota system. In 1978 California adopted a zone hunting concept, attempting to reduce hunting pressure on mule deer herds. In addition, a ten-day season was adopted. Car counter information indicated a reduction in hunting pressure of about 25 percent. The buck harvest in California declined 36 percent. California's share of the buck harvest was 91 percent, comparable to previous years.

In 1979 California retained zone hunting, but the season was lengthened to 16 days. Hunting pressure increased 33 percent in Zone X-6 (the Doyle Herd) and 40 percent in Zone X-7 (the Loyalton-Truckee Herd). The harvest increased 95 percent in Zone X-6 and 130 percent in Zone X-7. In Nevada a total of 58 bucks were taken.

Information and observations in recent years strongly indicated that Nevada's harvest continues to be primarily from their resident herd. Possibly due to a change in weather patterns, the bulk of the interstate herd does not enter Nevada until well after the Nevada deer season ends. Helicopter flights in Nevada and monitoring of undercrossings on Highway 395 appear to support this. Another hypothesis considered is that during those years of high harvest up through the late 1960's early migrators were removed from the herd and the herd has been reduced to one of generally late migration. Nevada herd composition counts do not generally support this although in most years counts are not successful until the bulk of the herd enters Nevada.

#### HIGHWAY 395

A major portion of the Lassen-Washoe Deer Herd migrates across Highway 395 twice a year, once in the fall toward Nevada and towards California in the spring. Two major migration routes cross 395 - one in the Red Rock area north of Hallelujah Junction and one south of Hallelujah Junction near the mouth of Evans Canyon. These were two areas of substantial deer highway mortality.

In the early 1970's Caltrans initiated plans to upgrade the portion of Highway 395 from Hallelujah Junction south to the Nevada State line at Bordertown to a four-lane divided highway. The old two-lane highway with considerable horizontal and vertical curves was becoming inadequate to handle the projected traffic. Traffic accidents were numerous on this old highway with poor line of sight and severe winter weather conditions. These conditions undoubtedly contributed to deer mortality on the highway.

The California Department of Fish and Game was provided the opportunity of involvement in the design process in its earliest stages. Cooperation between Caltrans and Fish and Game was excellent. Caltrans recognized the deer mortality problem and worked with Fish

and Game in defining the migration route and areas of high mortality. Caltrans deer kill records were analyzed and field observations of deer activity along the highway resulted in the migration route being delineated as being four miles wide, bisected by the Lassen-Sierra County line. Within this four mile zone, three locations were determined to be major crossing areas. Ideas and designs were developed to allow safe deer passage across the highway. The final design incorporating deer migration mitigation measures was approved and construction began in the spring of 1975.

The deer migration design features included deer-proof fencing, undercrossing structures, and one-way gates. The four mile zone defined as the migration route was deer-proof fenced on each side of the highway. The fence is 7 to 7 1/2 feet in height, six feet of woven wire with 2 inch by 4 inch openings, topped by three strands of smooth wire. This height appears adequate to prevent deer from jumping the fence. Wing fencing allows entrance to the undercrossing structures.

These undercrossing structures, or bridges, are six in number, two at each of the three major crossing areas. These undercrossings are multi-purpose - for cattle and farm equipment, but were enlarged for deer migration.

The openings are 12 to 16 feet high with a 20 foot bottom width. After passing beneath one bridge, the median strip is crossed and then the second bridge. Total length is about 400 feet. Lighting is good due to the size of the openings and width of the median. The entire crossing is deer-proof fenced.

For those deer that may get onto the highway by coming in the ends of the project, crawling under the fence, or entering through breaks in the fence caused by vehicle accidents or open ranch access gates, 38 one-way gates were installed. These gates allow egress from the right-of-way, but prevent deer entering the right-of-way.

Construction was complete in the fall of 1976 and evaluation of the project's deer mitigation design features began immediately. Stan Ford of Caltrans supervised this field evaluation. Attempts were made to utilize infra-red counters to count the number of deer using the undercrossings, but were found to be inadequate. The deer cross in groups and a dozen deer may indicate only three or four animals. The counter also does not document animals which may change their minds and move in the opposite direction of the on-going migration. Construction of track beds and daily monitoring was found to be the most accurate method under the circumstances to determine deer numbers. Even that became difficult when a large number of deer cross in one night.

A track count indicated that 509 deer crossed the highway in the spring of 1977. It was known that a total migration of the herd in the fall of 1976 did not occur. A mild weather pattern that winter allowed many deer to remain west of the highway throughout the winter.

The winter of 1977-78 was more severe with apparent near total migration across the highway. Helicopter flights with Nevada Fish and Game revealed large numbers of deer east of the highway. From these flights, it was estimated between 1000 and 1500 deer would cross the highway in the spring. In the spring of 1978 track beds were again monitored by Stan Ford and myself. A total count of 1,024 was made that spring.

The winter of 1978-79 was mild, again resulting in incomplete migration. Demands on time drastically reduced monitoring of track beds, but an estimated 500 deer again crossed.

Fall track counts just have not worked out. Migration is too lengthy, dictated by storms. Eastward migration may begin in late October and last until January. Ground conditions are poor. Rain, snow and frozen ground make track counts impossible.

As a result of this project, highway deer mortality has been reduced to near zero. The only known mortality has occurred when access gates have been left open, or gates stolen. In one instance, a cut bank was left close enough to the deer fence to allow deer to jump the fence. This condition was quickly corrected by Caltrans.

Total cost of the deer mitigation features of the project was about \$700,000. This is somewhat misleading as fencing and crossing structures would have been incorporated anyway, but certainly of a reduced magnitude. The cost of the deer features was nonetheless substantial.

In my view, the project has been an unqualified success. An apparent substantial increase in traffic since the project would have resulted in increased deer mortality and most likely some loss of human life without the project.

The delineation and documentation of this migration route has also aided the California Fish and Game Department in evaluation of proposed subdivision and rezoning of lands in the area. This information aids us tremendously when working with the Lassen and Sierra County Planning Departments on such projects. When we can show documentation of the importance of this critical habitat it is very meaningful to the County government.

#### DEER TRAPPING

In the winter of 1972-73, the California and Nevada Departments of Fish and Game, in a joint venture, initiated a comprehensive deer trapping and tagging project on the Lassen-Washoe Deer Herd. The purpose of the project was to more closely define winter ranges, migration routes, extent of the summer range, and to identify key areas such as fawning areas and spring and fall holding areas. A similar trapping program was conducted on this Herd in 1959-60, but was more limited in scope.

All known winter ranges south of the Red Rock areas were trapped. Two basic winter range areas were involved - Verdi Basin and the area around Petersen Mountain.

Three trap lines were established in the Verdi area. In two winters, 400 deer were trapped and marked.

Winter ranges in the Petersen Mountain area are much more geographically dispersed. A total of eight different trap lines were established, covering Petersen Mountain, Long Valley, 7 Lakes Mountain, Dogskin Mountain and the Sand Hills. In three winters a total of 272 deer were trapped and tagged. All deer were tagged, weighed and aged. A blood sample was taken from about 85 percent of all deer trapped for a blood analysis by a University of Nevada-Reno graduate student. The results of the blood study are inconclusive as far as any management implications are concerned.

The first year colored plastic streamers were affixed with numbered cattle tags. Streamer color denoted the particular winter range. Color and design coded round plastic disc tags identified individual animals.

It was soon determined that the streamers were not durable and were often ripped out of the ear. Retention of the disc tags was less than ideal.

The second year we changed to color coded plastic T-lok tags. Tag color again denoted winter range and large numbers on the tags identified individual animals. Although it was believed that visibility to the untrained eye was somewhat reduced, retention and the ability to withstand wear were greatly increased.

Cowbells were placed on adult does to aid in field location. In addition, 21 telemetry collars were placed on adult does. All the collars were on the 31 megacycle band. Fourteen were solar cell collars, five mercury battery, and two lithium battery.

Results of monitoring the telemetry collared deer varied greatly. The solar cell collars were the most reliable and the long life allowed monitoring for usually more than one year, enabling us to acquire additional migration information.

The battery collars lasted about one year on the average. The average duration for solar collars was 21 months, including some deer found dead with the collar still transmitting. A road killed doe carrying a solar cell collar was recovered in April 1979. The collar was still functioning, five years and four months after placing it on the doe.

Numerous presentations on the project were given to the public and especially the U.S. Forest Service District Officers, soliciting cooperation and reports of observations. The Forest Service was extremely cooperative with the result that they turned in approximately 80 percent of all reports received. A total of about 420 reports were received of observations of tagged deer. These include observation of tag color or identification of individual animals through tag number observation, recovery of road killed animals, and hunter killed bucks.

The number of observations received, monitoring of telemetry collared deer, and the great amount of time spent in the field during the actual trapping and in follow-up efforts resulted in a vast amount of information to both Fish and Game Departments. This has resulted in a comprehensive delineation of key habitat areas within the Herd.

A fawning areas study conducted by the Plumas National Forest in coordination with our trapping effort resulted in the delineation of that key habitat type on the Plumas Forest. This total deer habitat type delineation has been mapped on a county basis and included on our ASBI or "Areas of Special Biological Importance" maps to be included in the California Fish and Wildlife Plan update. This mapping and accompanying narrative will be formally presented to the respective counties in California for planning department use.

The information has already been used extensively on an informal basis to evaluate impacts of proposed land-use changes. This is exactly the type of documentation that planning departments and commissions are looking for from us. Political realities are another story, but I feel this type of information coupled with an increasing awareness on the part of the general public concerning impacts of land uses is beginning to make in-roads into the decision making process. We certainly do not have "carte blanche", but the situation has improved in recent times and hopefully, from our point of view, will continue to improve.

#### LAND USE IMPACTS

In recent times, land uses adverse to the welfare of the Lassen-Washoe Herd has been of little consequence. Winter ranges were owned by federal agencies or private cattle ranches whose main goal was to produce cattle. In the 1940's, '50's and early '60's when deer numbers were high, in some years probably beyond the carrying capacity of the range, the major concerns centered on over-use of these winter ranges. Major efforts of herd management were directed toward documenting this over-use and attempting to balance cattle and deer utilization. Towns were small and compact. Reno was the "Biggest Little City in the World" but relatively small and geographically removed from key deer areas.

Today a new era of concern regarding herd welfare and even survival is well upon us. We began to see a boom of construction and development in the 1960's in California on the west slope of the Sierra Nevada's. The east slope of the Sierra's seemed at that time somewhat immune to this activity. Certainly growth was occurring, but as a slow pace and usually consisting of "filling-in" of already existing town sites or construction immediately adjacent to these towns. Who, in their right mind, would want to live in this sagebrush desert? Well, we found out. Tens of thousands have come to the Reno area and tens of thousands more will come as housing and services become available. The valleys north of Reno are filling with people at a near unbelievable pace.

The first of a landslide of planned developments took place about 1970 when Nevada County approved the approximately 2,000 acre Tahoe-Donner subdivision near Truckee. This development occupies good summer range and lies in a major migration route from the Verdi winter range to the Donner Pass area. At the present, this development is about one-third completed, so we have not yet seen the full impact of the project.

At about the same time, the first two units (about 400 acres) of the Sierra Brooks subdivision near Loyalton, Sierra County were approved. This subdivision lies in historical winter range and in a major migration route. In 1977 the owner, Occidental Land Company, attempted to subdivide the additional 1,300 acres it owns adjacent to the already approved subdivision. After two EIR's were written on the project and found inadequate, a third

EIR written by an outside consultant contracted by Sierra County was certified. The project was then denied because of serious environmental impact. One of the major concerns was the projected impact on deer winter range and migration routes.

The temporarily dead Disney project at Independence Lake would have had serious adverse impacts on deer migration, fawning areas and summer ranges. A massive EIR was written but Disney shelved the project when, in my opinion, Sierra County would not adhere to Disney's time line.

In Plumas County, a major subdivision is planned for the Beckwourth area. This proposed project of 1900 acres and 3,750 units lies in a major migration route to Beckwourth Peak. Concerns of local citizens regarding environmental impacts have resulted in the project being in limbo, possible undergoing redesign and reduction in size.

Approximately 800 acres just south of Lake Davis has been split into 20 acre parcels. This area is a portion of the Lake Davis Estates Fawning Area, so designated in a study conducted by the Plumas National Forest. Deer densities in this fawning area exceed those on many winter ranges.

The most immediate and potentially catastrophic impacts appear to be in the Long Valley area of Lassen and Sierra Counties. In the last 2 or 3 years, four cattle ranches totaling around 25,000 acres have been sold to developers. These ranches are contiguous and form a block about five miles long and six miles wide. This block lies directly in the migration route that crosses Highway 395 north of the Nevada State line. This is the migration route in which Caltrans constructed the undercrossings to mitigate the highway kill.

Development of the Rancho Haven Estates and Red Rock Valley subdivisions in Nevada have experienced a slow build-out, but can soon be expected to exert adverse impacts on wintering deer.

Development in the Thomas Creek areas southwest of Reno and in the Verdi area is presently at the point where additional construction will encroach on critical winter ranges. Construction along the Truckee River from Verdi to Reno and in Truckee Meadows has had minimal impact but now developments are creeping up the lower slopes of Mt. Rose, Peavine Mountain, and Verdi Peak. The deer herd will be slowly crowded out as subdivisions take these winter ranges.

The final decisions regarding these proposed and presently unheard of developments will be made by the respective county board of supervisors. The attitudes and values of these boards, planning commissions, and planning departments vary greatly from county to county. As a general rule I think it is safe to say that the more rural the county the more value its residents place on wildlife and the more likely the county government is to seriously consider the potential impacts of proposed developments on wildlife. In that respect Sierra County is an ideal county to work with. The county residents and consequently the county government place a high value on wildlife. The planning commission and board of supervisors have in general given wildlife fair consideration and have not been afraid to make decisions in favor of wildlife.

The passage of Proposition 13 in 1978 in California has restricted the ability of counties to raise property taxes to pay for public services. Boards of supervisors now question the ability of new subdivisions to pay for themselves regarding public services. Some decisions made adverse to land development because of the impact of proposition 13 have been favorable to wildlife.

Our successes with county planning decisions have been somewhat limited. When we do win, wildlife only ties. When we lose, wildlife loses. We have experienced a change in attitude in recent years. People concerned with wildlife appear to be growing in number and becoming more effective in their actions. If they and we are successful in our future efforts, then 10 or 20 years from now someone else will be able to give another status report on the Lassen-Washoe Deer Herd.