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The Early Season Deer and Livestock Conflict

Because of the small amount of definite information relative to the seasonal forage preferences of deer in the Eastside Region of California the extent of competition with livestock can only be surmised. Recent estimates of game animals indicate that on the National Forests of this region there are approximately 75,000 deer and over 2000 antelope. On the entire Eastside it is estimated that there are nearly as many deer and antelope as there are cattle. With such a large number of game animals utilizing the summer ranges the possibility of a conflict is great and on some areas it is quite evident that such a conflict exists. The seriousness of the situation is most evident in the fall and winter ranges of the deer particularly in the Modoc National Forest. In their fall migration from Oregon the deer congregate in large numbers on the bitterbrush ranges that have already been grazed by livestock. The concentration is so great that practically all remaining available leafage is removed. While this is not direct competition with livestock the heavy use is reflected by a decrease in the forage producing capacity of the vegetation. In the summer when the livestock are on the range the deer occur singly or in small groups, and as their grazing cannot be distinguished from that of livestock it is difficult to determine to what extent their diets coincide.

Data concerning the forage species eaten by deer are exceedingly hard to obtain. When livestock are using the range at the same time the only way of obtaining such information is by actual observations of their feeding which is practically impossible under natural conditions. Furthermore, as their diet undoubtedly changes during the season, as does that of livestock, observations throughout the year would be necessary for a complete record.

In 1936 at the Burgess Spring Experimental Range several days were spent in the spring examining deer grazing just prior to the entry of cattle in an effort to obtain some information which would furnish a brief insight of the forage species taken by deer at that season and their relation to the cattle diet at approximately the same time.

The Burgess Spring Experimental Range is in the Lassen National Forest 30 miles northwest of Susanville. It is a typical Cariside range in a cut-over ponderosa and jeffrey pine type. Idaho fescue, sedge, squirrel-tail, nuda cana, arrowroot balsamleaf, squaw mat, lupine, bitterbrush, and sage are some of the more dominant forage species.

Rocky Mountain Mule Deer are abundant on the range from early spring until the first heavy winter storms. The range of this species in California is chiefly on the eastern slope of the Sierra Nevadas north to Oregon and south into Inyo county. The exact time of their migration onto the plateau is not definitely

known but it is at least soon after the snows have melted and possibly before. The time of their migration is probably influenced to some extent by the drying of the feed on their winter range. Some observers have noted that deer have been seen on the west side of Eagle Lake as early as the last of March or at least two months before the range is opened to livestock grazing. With the advent of the winter storms the deer move to the eastward, those from this area passing north of Eagle Lake and usually wintering on the Madeline Plains in Nevada. Residents of the Eagle Lake country have said that during mild winters some of the deer remain in California east of the lake.

Two distinct methods were used in obtaining the data on deer grazing. The majority of the notes were taken during a strip cruise of the area. The observer walked across the area and recorded all instances of deer grazing within a strip 7 feet wide. The width of the strip was at first determined by a stick held in front of the observer but this was later abandoned and the width estimated. Seven feet was selected for the width of the strip as 3½ feet was about the maximum distance that all grazed plants could be seen readily. A distance of 7½ miles was walked, the strips being systematically distributed

over the area. The data recorded were the number and species of plants grazed, the part or parts taken, the percent of plant removed, and the presence of any deer signs in the vicinity of the plants grazed. The other method used was an examination of 836 quarter mil-acre quadrats that had previously been set out gridding the entire 5-5-0 acres. Two examinations were made of these plots, one before and one after the strip cruise. The same data was recorded as in the strips cruise.

As there were no livestock on the range during the examinations it became relatively easy after a short time to distinguish plants grazed by deer from those nipped by rodents. Since the deer have no incisors above, the forage must be partly pulled or jerked off rather than actually bitten off. This leaves a rough break. Rodents, having both upper and lower incisors nip the plants leaving a smooth, usually diagonal cut which is easily discernable, particularly on the young, tender vegetation. Furthermore, on plants eaten by rodents the grazed area is ~~apt to be~~ uneven as each leaf and stalk is usually nipped off separately while the grazed area of plants eaten by deer are more or less even, several stalks and leaves having been pulled off in one bite. When any doubtful case was encountered it was omitted.

The two quadrat examinations were made primarily to record all grazing on the plots, data necessary for studies of cattle ~~utilization~~ being carried on. While it is known that most of the plants were grazed by deer it is quite probable that a small percentage were eaten by rodents as no differentiation was made at the time of the examination. The data, therefore, is not intended to be used as a list of species known to be grazed by deer but is included as ~~information~~ supplementing the strip cruise in which only deer grazing was recorded.

During the five day cruise of the area 791 plants were recorded as grazed by deer. Of the total ~~identified~~ species, 84% were herbs, 15% were shrubs, and only 1 percent were grasses. 40%, or slightly more than half of the grazed species consisted of Crepis spp. and Leptotaenia dissecta. The remaining half was made up of 32 other species.

Crepis spp. are very succulent milky juiced perennials. Their ~~having a~~ moisture content at the time of the cruise ~~of~~ was 80%. The majority of the plants grazed of this genus were Crepis acuminata although a small amount of Crepis occidentalis is included. There seemed to be no preference for any particular plant part as those taken were evenly divided between leaves and leaves, stems, and flowers. As the plants had just begun developing their inflorescence, many had only leaves. Apparently the deer took any plant convenient when grazing.

Second in the list of preference is Leptotaenia dissecta.

This succulent Umbellifer accounted for 23% of the species grazed. As the majority of plants had not yet begun to produce flowers, leaves only were taken in most instances. This species also had a high moisture content of 80%.

Purshia tridentata was third in preference, making up 7% of the total. This shrub was flowering at the time of the examination but only leaves were recorded as having been taken.

Lomatium, another succulent Umbellifer, was fourth in preference, making up 6% of the total.

Wyethia and Iris and Symphoricarpus each made up 4% of the total and the remaining 27 species accounted for 29%.

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The results of the first two quadrat examinations show that Crepis spp., Leptotaenia dissecta, and Lomatium were the first 3 species in order of preference both times. These three species made up 66% of ~~those~~ plants grazed the first examination and 64% ~~of those found~~ at the second examination. Shrubs were not recorded during these examinations as they were to be treated as a seperate study later on which accounts for the absence of Purshia tridentata in the list of species grazed.

The average percent of plant grazed varied with the species, ranging from less than 1% in the case of shrubs to 40% in Leptotaenia and Lomatium. In few cases were entire plants eaten, the deer evidently taking one bite and passing on to the next one.

During the strip cruise signs of deer were frequently seen on the area. 1.34 inches of rain fell during the 5 day period preceding the examination and obliterated many tracks. Despite this fact, tracks were seen in the vicinity of 88 of the plants grazed.

Comparison of Cattle and Deer Diet

Two weeks after the deer utilization examination some cattle on the same area were observed while grazing and data obtained of the species preferred. The observer followed the stock on foot and a tally was made each time an animal grazed a plant. The total tallies of each species then indicated

the relative preference of the cattle at that time. The following list compares the percent that each species makes up of the diet of each class of stock. Only species taken by both deer and cattle will be included.

While the deer cruise covered the entire pasture, the cattle observations took place only where animals could be found grazing. As Purshia tridentata is unevenly distributed over the area the absence of this shrub in the cattle diet at this time may be attributed to the fact that none or few of the shrubs where present in the part of the area in which the cattle were observed. Two weeks later at the next cattle observations this shrub was one of the two species top ranking in preference, making up 21% of the total plants grazed. The following year during the period of June 28 to July 11, Purshia made up 27% of the total plants grazed. The difference in plant development between the two years varied by only a few days.

From the above results it is indicated that Crepis spp. and Purshia tridentata are two species for which there is the most competition in the spring.

Crepis is most palatable in the spring and early summer, very little being taken by cattle later on in the season as the herbage dries rapidly in July. The preference of deer for this species probably decreases in a like manner. As deer come on the range much earlier than the cattle they have the opportunity of grazing this plant from 1 to 1½ months or more before the cattle are able

to. Crepis varies in abundance from year to year and in years of a minimum production there is apt to be little remaining when the cattle begin grazing. The value of the intensive utilization of Crepis by cattle as reflected by their early se son gains in weight is not yet known. A lack of Crepis in the spring may not be important as far as cattle gains at this time are concerned as where is an abundance of other feed on the range. However, it results in a heavier use of the later maturing perennials and an ultimate closer utilization of the range as a whole.

The most important competition indicated is that for bitterbrush. The results show that this species makes up approximately one fifth of the total plants taken by cattle and 7% of those taken by deer in the early summer. There is a relatively small amount of Purshia on the range and most of the available leafage is usually removee by the end of the year. Any grazed by deer, then, is that much less for the cattle. There is little data concerning the use of Purshia by deer during the summer and ~~fall~~ although it is well known that usually where this species is present on winter ranges it is grazed avidly. On September 8, 1936 an observer watched a doe eat consider able bitterbrush on the experimental range. All indications point

to the fact that deer browse on this species to some extent the entire year and that deer contribute a great deal to its close utilization on the experimental range.

Grasses made up only 1% of the species taken by deer at the time of the strip cruise while they made up 45% of the species grazed by cattle the following week. There appears to be little use of grasses by deer at this time of year. That deer do take grasses later in the season is known but the extent has not been determined. On July 17, 1936 2 yearling does were watched grazing for about 5 minutes during which time they ate 38 stalks of Elymus on the experimental range.

Herbs made up 84% of the ~~species~~ plant grazed by deer and the percentage for cattle was 55. In both instances the species consisted largely of early flowering, succulent perennials.

15% of the species taken by deer were shrubs. None were seen grazed by cattle during the first grazing period observed but the following two weeks they made up 21% of the diet.

Summary & conclusions

1. On the Eastside Pine Ranges of California a conflict exists between deer and livestock, ~~the~~ the degree varies with the season and the ~~range~~ vegetative type but the extent is not definitely known on any range.

2. An examination of the Burgess Spring Experimental Range was made in the spring, 1936 in an effort to obtain a little ~~information~~ concerning the species grazed by deer & the degree of conflict with cattle.

3. Rocky Mt Mule Deer are abundant on the range from early spring until winter storms ~~set~~ in begin.

4. For this date a strip cruise of the area was ~~made~~ made and the number of ~~species~~ ~~species~~, plant parts, and percent of plant grazed were recorded. Supplementary ~~information~~ information ~~was~~ of the same kind was obtained by 2 examinations of 836 quarter mil acre quadrats.

5. Deer and rodent grazing were distinguished by the rough breaks made on the vegetation by deer and the relative evenness of the plant area grazed as contrasted with the smooth, diagonal cut made by rodents on the individual stems and leaves.

~~6. 84% of the plants grazed by deer were herbs, consisting largely of those~~

6. 84% of the plants grazed were herbs, consisting largely of those quite succulent and early flowering.

7. Crepis spp. and Lyptotaenia dissecta made up over 50% of all plants grazed.

8. Prushia tridentata made up 7% of the total, Lomatium 6%, Urgethia 4%, Symphoricarpos 4%, and the remaining 27 species 29%

9. Of the 2 supplementary quadrat examinations, Crepis, Lyptotaenia and Lomatium made up about 2/3 of all plants grazed.

10. The most important ~~competition~~ livestock & deer conflicts in the spring is for ~~Pru~~ Crepis and Prushia

11. The presence of deer on the area from 1 to 1½ months before the cattle arrive gives them ~~then the opportunity~~ first choice of the most palatable species.

~~12 Although the competition~~

12. The use of the early flowering plants by deer may not ~~result~~ cause ~~in~~ decreased cattle gains in the early summer but ~~it~~ results in a closer utilization of the range by the end of the season.

13. There is no competition for grasses in the early summer, less than 1% being taken by deer & 45% by cattle.

14. ~~84% of the plants grazed by deer~~ 84% were herbs and ~~by cattle~~ 55% were shrubs.

15. ~~of the~~ of those grazed by cattle ~~55% were herbs and~~ approximately half were herbs and 20% shrubs

Conclusions

Much forage palatable to cattle is removed by deer during the month or more that they are on the range ahead of the livestock.

Deer are apparently as selective as cattle in their choice of forage species. The selection of the same species for grazing by both classes of animals, as in the case of Crepis spp. and Purshia is bound to result in close utilization or overutilization of these species.

Because grasses make up a large percentage of the cattle diet while deer graze them but little, and as there is an abundance of feed on the range there is little actual competition for forage in the spring and early summer. However, the deer utilization of forage that would otherwise be eaten by cattle results in a closer utilization of the entire range at the end of the grazing season.