

23100

231 Giannini Hall,
Berkeley, Calif.

To Members of the Range Committee:

Enclosed for your information and use is copy of a map of the experimental brush pasture areas in Shasta County. The map has been much improved over the original as to accuracy and detail by Prof. H. E. Malmsten, who recently resketched and recompiled the data for both areas and then made up the enclosed map.

For the following reasons I strongly recommend that the islands of unburned chamise in area B, the burned pasture, be left unburned.

1. There are only about 24 acres less of burned chamise in pasture B than there is chamise unburned in pasture A, hardly enough difference to justify burning. Moreover, the two areas are so different in topography and forage covers as to afford no reliable basis of comparison as to forage values of the two pastures. Unfortunately, the lack of similarity between the pastures requires that each one be studied as a separate unit, and perhaps inferential comparisons may be made between pastures A and B. Regardless of the treatment given the two areas, pasture B would yield far better results for grazing, as the large areas of oak browse entirely over-balances the grazing values on area A.

2. It would be very unfair, and administratively I feel a grave error, to request Mr. W. J. Hufford, State Ranger in Charge in Shasta County, to burn the remaining patches of chamise in area B. While discussing such burning with Mr. Hufford in Redding last week, I was informed that they have had in Shasta County this season the worst fire situation in his experience. Of some 180 fires, outside of the national forests, to which his organization has reported, not less than 150 have been incendiary. The feeling exists among certain of the local citizenry, who are evidently in position to know, that the brush burning advocates are setting fires under the assumption that "burning must be highly beneficial because the University of California burned their pasture"! Controlled burning, widely advertised, has given the incendiaries and irresponsibles a loophole for a real burning "holiday". This attitude has not only been responsible for fires in the brush type, but has been directly responsible for the burning of approximately 21,000 acres of grassland, much of which was relied upon by many ranchmen to carry the stock through the winter. I was informed that some stockmen would be forced into bankruptcy due to the burning of the grass, as the banks refuse to advance funds for the purchase of feed where the livestock are already heavily mortgaged. The local state ranger force is greatly discouraged over the attitude of some stockmen towards fires. The local rangers have urged, and wisely so I feel, that if there is

any more experimental burning in the interest of the University study, that the University investigators themselves do the burning without the cooperation of the ranger force. Some of the stockmen who lost their valuable grass feed this season, and who do not believe in burning, at least on their own ranches, seem to feel that the rangers should have controlled the fires, a humanly impossible task even with the help of a goodly number of C.C.C. men.

In view of the situation developed, a modification of the original plans for the experiment is necessary. If additional grazing capacity studies are to be made of chamise or chaparral areas following burning, it is recommended that areas be selected which are already burned, thus avoiding the need of setting fires. The University must approach experiments in brush burning with a great deal of care, otherwise the incendiaries will use the University as a catspaw.

Respectfully submitted,

A. W. SAMPSON
Secretary

September 28, 1934

MEMORANDUM FOR RANGE IMPROVEMENT COMMITTEE

September 28, 1934

The following tabulation gives the respective areas of the plant cover (types) and other pertinent data of the two University of California experimental chaparral pastures in Shasta County:

Plant Cover (Type)	Burned Pasture (B) Acreage			Unburned Pasture (A) Acreage			Grand total Acreage
	Burned	Not Burned	Total	Burned	Not Burned	Total	
Chamise	238.3	79.8	318.1	1.2	262.8	264.0	582.1
Chamise - grass	--	1.5	1.5	--	3.0	3.0	4.5
Digger pine - chamise	--	2.2	2.2	--	29.3	29.3	31.5
Grass - chamise	--	--	--	--	2.6	2.6	2.6
Oak (browse)	22.3	6.5	28.8	--	--	--	28.8
Oak (woodland)	17.6	--	17.6	--	1.3	1.3	18.9
Total	278.2	90.0	368.2	1.2	299.0	300.2	668.4

The two experimental chaparral pastures are not comparable either in plant cover or in topography. For these two major reasons the increased weight of the livestock in one of the pastures over the livestock in the other should not be interpreted as being due to the treatment of the pastures, but to the natural differences in the pastures. For forage production and utilization the east or burned pasture is much superior to the west or unburned pasture, and presumably would be superior whether burned or unburned.

The best forage types of the two pastures are the oak covers (types) which have been divided according to their stature into browse and into woodland, respectively. There are 46.4 acres of these oak types in the burned pasture and only 1.3 acres in the pasture not burned. The oak (browse) cover in the burned pasture, because it occurs in long strips on the north exposures, serves a dual purpose in that it provides good feed and is an excellent natural means of obtaining good distribution of the livestock over the area. The saddle on the main ridge near the north end of the burned pasture is at the upper end of one of the larger of these oak browse types, and here is found much evidence that it was a natural congregating place for the cattle during the period of grazing. In the unburned pasture where there is a similar saddle at approximately the same elevation, but probably because the oak cover is absent, there was no indication that any livestock had visited that part during the season.

The more gentle topography of the east (burned) pasture makes it much more suitable for grazing than does the much steeper topography of the west pasture. A much larger per cent of the east pasture is included in gentle slopes. In the west pasture there was no evidence of any livestock grazing above the 2100 foot contour, whereas in the east pasture the animals had grazed above the 2300 foot contour. In the canyon which divides the two pastures there are more rocky outcrops and precipitous terrain included in the west pasture than in the east. These greatly impede the natural movement of the cattle.

The distribution of the cattle in the burned pasture was fairly uniform over the whole area, whereas in the unburned pasture their distribution was uneven and most of the grazing had been concentrated in the southern part of the pasture and also on a narrow strip bordering the main stream course. The better distribution obtained on the burned pasture is attributed to easier topography, strips of oak browse, and probably to greater accessibility due to burning, and to better watering facilities.

Because of the contrasts between the two areas and the superiority of the eastern pasture over the western pasture, I believe that a grave mistake would be made by attributing any increase in weights of animals on the eastern pasture over those on the western pasture to be due to the treatment accorded the pastures. Far more reliable results could be obtained by using the unburned pasture as a check pasture and by comparing the results obtained from year to year on the burned pasture, or by comparing the gains made in 1934 with those obtained in 1939 after the chaparral has again had an opportunity to come in. The unburned pasture, if used as a check pasture, should

give indications of variations in forage from year to year, provided it were not grazed too heavily with a consequent decrease in carrying capacity. Such a check would be invaluable in the interpretation of the data obtained from the burned pasture where the chaparral cover will be increasing from year to year as the effects of the burning become more remote.

A topographic base map of the area has been made and two vandyke negatives have been prepared; one shows the topography and pasture fences, and the other supplements the first with the cover types. A print of the latter is included with this memorandum. Prints of either or both of these are available from the Division of Forestry.

H. E. Malmsten

UNIVERSITY OF CALIFORNIA
EXPERIMENTAL CHAPARRAL PASTURES
SHASTA COUNTY

By H. E. MALMSTEN

1934

SCALE 660 FEET TO 1 INCH

LEGEND

P FENCED PLOTS

G GATES

Ch-B CHAMISE, BURNED

Ch-Ub CHAMISE, UNBURNED

Ch-Gr-Ub CHAMISE-GRASS, UNBURNED

DP-Ch-Ub DIGGER PINE-CHAMISE, UNBURNED

Gr-Ch-Ub GRASS-CHAMISE, UNBURNED

Q-B OAK, BURNED

Q-Ub OAK, UNBURNED

Q-W-B OAK, WOODLAND BURNED

