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THE EASTSIDE PINE REGION OF CALIFORNIA
AND ITS RANGE PROBLEMS

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Introduction

The role that livestock play in the proper management of grazing lands in the Eastside Pine Region of California, and the interrelation between stock and major land uses such as timber growing, watershed, game, and recreational use, are at the present time known mostly from general observation. Scientific data on this subject are almost entirely lacking. The following brief discussion outlines some of the prevailing forest and livestock problems in the region.

Description of Eastside Pine Conditions

East of Mt. Shasta and Mt. Lassen, and extending a fifth of the way down the state from the Oregon border, is a lava cap that forms a mountain plateau 4000 to 6000 feet in elevation. It is really a part of the Great Basin which extends from the Rocky Mountains to the Sierra Nevada and Cascade Ranges. This area is commonly referred to as the Eastside, or Eastside Pine Region of California^{1/}. It is a distinct land unit and differs from the rest of California in topography, geologic formation, climate, and character and growth of vegetation.

This region presents a surface of hummocks and hills of lava, irregularly interspersed over an extensive plains area of lava soil. The lava is shattered into angular-shaped, jagged chunks, and covers the earth's surface to undetermined depths. Beds of eruptive rock have been cleft into

^{1/} Eastside conditions extend as far south as the Mojave Desert east of the Sierra Nevada crest.

fissures that extend many miles in length. Spread over this region are cinder cones, extinct craters, steam vents, and hot springs.

Large and numerous meadows, valleys, and plains areas are scattered over this large plateau. Tillable lands are found on the floors of the valleys and on the gentle slopes rising from them.

Precipitation is about eighteen inches a year. Most of this falls in the form of snow during the winter months from November to March. Summer thunder showers are common, but are rarely effective in wetting the soil enough to aid plant growth. The precipitation and melting snows easily penetrate the absorptive volcanic rock formation. This portion of the state, in contrast with the rest of California, has an abundant supply of subterranean water that appears at the surface of the ground in the form of large springs. Many of these springs form the headwaters of streams and rivers. However, the region is characteristically dry on the surface on the drained slopes, and deep wells from 300 to 800 feet have to be sunk to obtain a steady water supply for household, irrigation, or stock use. In wet years the closed basins and valleys catch and hold considerable quantities of water, which is most effectively used as stock water.

Generally, the hilly and mountainous portions of the region are clothed with coniferous timber and brush. Ponderosa and jeffrey pine characterize the region. White fir and incense cedar are associated commercial species that are found on north slopes and in the upper half of the pine zone. Manzanita, bitterbrush, squaw mat, mountain mahogany, snow brush, service berry, and chinquapin are common brush species found in the commercial timber belt.

Vast plains areas are covered with big sagebrush. Depressions and rocky gentle slopes and also openings in timber are very frequently covered with low sagebrush. Idaho fescue, mule ears, a dryland sedge, and species of blue grass, squirrel tail, and needle grass are important grasses and herbs found under timber and in sage types.

Dry and wet meadows form one of the most important grazing types in the whole region. Sedges, rushes, blue grasses, hair grasses, needle grasses, wheat grasses, camass', buttercups, polygonums, etc. are representatives.

Lumbering, grazing, grain farming, and recreation are important uses of the land. Watershed values are at a minimum compared with other land areas in the state exclusive of the desert.

Lumbering, grazing and associated farming, and recreation will always be major factors in land utilization in the Eastside Pine. These uses are directly interlocked with each other and one is affected by the others. Lands which now grow timber also produce forage for domestic livestock and for game animals. Similarly, the brush and open types support both game and livestock. The tillable lands produce supplemental feed for stock grazing on timber, meadow, and sage lands. Obviously, sound coordination of these uses is essential to permanent and proper use of the land. The lack of basic data which could be used to plan a better management than now exists is one of the main reasons for present administrative difficulties.

Except for agricultural and waste land, all of the Eastside Pine is grazed by livestock. About 100,000 cattle and 220,000 sheep graze in the region north of Lake Tahoe where most of the problems under consideration exist. The main grazing types of this area can be placed in the following

decreasing order of importance: first, meadows and untimbered sage flats which are without question primarily range lands; second, virgin and cut-over timber lands; and third, browse ranges.

Range Problems

The problems needing most urgent attention are three. The most obvious centers around the widespread deterioration of meadows and sage flats due to excessive or untimely use by livestock. Just as important but less obvious is the problem of livestock grazing versus damage to timber reproduction. Third, proper carrying capacity, probably the most important factor in the management of any range, is in need of accurate determination and definition. Plans are in progress to conduct research in these fields.

The tree reproduction problem will receive first attention because of immediate practical need. Casual field observations discount the probable seriousness of this problem. Marked evidences of damage to tree reproduction by either class of stock can be found only in a few localized spots, and yearly destruction of seedlings and young trees by stock, if it occurs, is too slow a process to be conspicuous or even evident to general observation. Yet silviculturists feel that the grazing of livestock, particularly sheep, is detrimental to the satisfactory development of tree reproduction. Until facts are obtained on the matter, the uncertainty will always exist for this locality.

The present practice of excluding sheep from cut-over lands on some forests in the Eastside Pine Region calls for investigation. Whereas but a small portion of the Eastside Pine timber is now cut, the mature and overmature condition of the forest puts large scale cutting into the not too distant

future, provided this exceptionally fine timber, probably never to be obtained again, is not allowed to decay and fall prey to insects. Widespread cutting of timber would force sheep off these ranges but would allow cattle to remain. The difference between sheep and cattle grazing on tree reproduction in this region is not known. No more than an assumption can at the present time justify discrimination against sheep under Eastside conditions.

In the final analysis, the reproduction problem is just as important in the uncut timber stands, where both classes of stock are permitted, as on cut-over lands where one class is excluded. Is it not the aim of silviculture to have a well-stocked stand at the time of cutting, rather than to hope for wholesale regeneration after cutting? Should not the best silvicultural and range management practices be operative at all times in a growing forest and on a developing range? Of course every means should be taken to favor the growth and establishment of seedlings on lands primarily suited to the growing of timber, even to the exclusion of one or both classes of stock after logging, when presumably conditions for the establishment of seedlings are at an optimum. But such recourse should be taken only when there is a fairly satisfactory basis for action. To overcome the inconsistencies mentioned above and to avert the unpopular criticism of sheepmen who are excluded from cut-over land, investigations are being started in this field.

Carrying capacity work will be carried on in conjunction with the tree reproduction studies. The close relationship between grazing problems in any one type makes it profitable to conduct supplementary work of this kind. As a matter of fact in this case they are directly tied together.

The importance of grazing capacity studies, particularly in the Eastside Pine Region, which overshadows all other summer ranges in the state in importance because of the presence of large areas of strictly grazing lands and because even in timber types forage occurs in appreciable amounts, will be brought out in the following considerations.

The proper use of land and land resources hinges very strongly on a close determination of the yearly production capacity of reproduceable resources such as forage and timber, and the total supply of nonreproduceable materials such as metals, coal, etc. The former is of direct concern in the grazing problem of the Eastside Pine.

Here it will ultimately be essential to know how many pounds of beef and mutton under prevailing climatic conditions can be produced on unit areas of the major forage types, including timber types, when the vegetation is so grazed as to yield an optimum supply of forage. Considering fluctuations in seasonal supplies of forage and water and its dependence on other ranges or feeding centers, the relative importance of the Eastside Pine Region as a livestock producing area can be determined. In the interest of the range resources it is urgent that carrying capacity work be started as soon as possible.

The need for work of this kind is pointed out a little more clearly by the following practical questions:

Does it pay to graze the timber types? Is there enough forage furnished to satisfactorily maintain livestock during the season? In other words, can stock graze this type with reasonable efficiency and gains in weight? Is the carrying capacity changed by logging? In what direction? Will there come a

time in the growth of the new forest when tree reproduction will have replaced enough forage to make it unprofitable to graze the type? How many years after logging and at what stage of plant succession does this occur?

Of course the all inclusive question that the stockman and ranger are confronted with is -- How many head of stock will the type carry per unit area, year in and year out, without range deterioration?

The destruction of mountain meadows through poor grazing management which is resulting in serious erosion is fundamentally one of the gravest problems in the Eastside Pine Region. As a matter of fact, direct control measures in the form of check dams and streambank plantings have been put into effect to stop this destruction.

If the underlying cause for the erosion lies in livestock management, and if the management is not changed, the dams and plantings will serve as temporary expedients but cannot permanently stem the general march of this insidious form of land deterioration. That livestock management plays a role in this problem is hardly debatable, but what part and how important is another question.

Studies on carrying capacity, on the interdependence of vegetation types, on water relationships, and on stock distribution are needed in connection with the problems in meadows and sage flats.